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A STUDY OF VACCINATION IN FIVE HUNDRED NEW-BORN INFANTS

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AND
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WASHINGTON, D. C.

More interest in early vaccination of infants has developed in recent years than ever before because of more concern for public health and preventive medicine, and the desirability of having as many as possible in the general population immune to the various preventable diseases. For the most part compulsory vaccination in the United States applies only to children before they enter the public schools. This allows vaccination in the majority of children to be deferred until school age, whereas it has long been established, although not so widely carried out, that infants, even new-born infants, bear vaccinia well, with a moderate local and insignificant constitutional disturbance, such as a febrile reaction, an altered well being and an unfavorable effect on nutrition. Statistical tabulations [1] of vaccinial encephalomyelitis are uniform in disclosing that its occurrence is lowest among infants vaccinated in the early months of life. This fact has undoubtedly stimulated interest in early vaccination.

HISTORICAL NOTES

Up to Jenner's time, smallpox was widely prevalent, devastating epidemics were frequent, and smallpox mortality was very high, especially among infants, in whom the disease exacted the highest toll. The method of prevention employed then was inoculation of matter from smallpox pustules into the skin of healthy subjects. The dangers of such a procedure [2] were very great and the outcome was uncertain, for smallpox generally resulted. If mild, the subject recovered with resulting immunity, but he first had smallpox none the less and was capable of and did at times actually spread smallpox to his contacts.

There were three cases recorded by Jenner [3] in 1798 in which infants had been inoculated with cowpox. They were 6, 11 and 18 months of age and vaccinated with humanized lymph; i. e., arm to arm transfer of virus. Two were successful, but Robert F. Jenner, aged 11 months, "did not receive the infection," although three older children inoculated with the same lymph, taken from the arm of William Pead, aged 8 years, had successful vaccinations.

Lack of appreciation and proper evaluation of Jenner's discovery in England in no wise deterred other countries from prompt adoption of this boon to mankind. Fröbelius [4] reported that the empress of Russia in 1801, after correspondence with Jenner, obtained from him humanized cowpox lymph, which under her patronage was employed at once in the foundling hospitals of Moscow and of St. Petersburg; in the latter it was used continuously in arm to arm inoculation until 1867, a period of sixty-six years, when it was supplanted by animal lymph obtained first from cows. In the St. Petersburg Foundling Hospital in 1801 and for many years thereafter, babies from 7 to 8 days old were regularly vaccinated with the Jenner lymph in six cuts in each arm. By 1817, 34,677 children had been vaccinated there without a fatality. The chief physician reported that the only observation worth mentioning was that there were children who were very slightly susceptible to vaccination and that it was necessary to inoculate some of them as often as twelve times to be successful.

Compulsory registration at the hospital afforded unique opportunity for observation of the foundlings up to 25 years of age. In the forty years 1826-1866 there were seventeen smallpox epidemics in St. Petersburg. Among an average of 15,000 living foundlings, all of whom had been vaccinated as required by decree of the czar before leaving the hospital, there were only thirty-six of them to have smallpox, and only one fatality, an infant aged 1 year. In 1867, 1,043 former inmates of the hospital were revaccinated, 1.3 per cent with good result and 9.9 per cent with irregular takes, and 88.6 per cent were reported as without result.[5]

The contention that arm to arm inoculation caused degeneration of vaccinial virus does not seem to have been borne out in the St. Petersburg Foundling Hospital. In 1867 the unsuccessful vaccinations there among 4,000 infants and children of the neighborhood were less than 1 per cent (0.8 per cent). Transfer of human disease was a disadvantage, erysipelas occurring in from 1.5 to 3.5 per cent among the inoculated, as well as a certain number of cases of syphilis. Vaccination alone was not responsible for erysipelas, for it occurred in some babies before inoculation and in others after recovery from vaccination.

Read before the Section on Pediatrics at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 15, 1934.

From the Pediatric Department, George Washington University School of Medicine, the Pediatric Service of Gallinger Municipal Hospital, and the Children's Hospital.

Owing to lack of space, this article is abbreviated as it appears in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Great Britain Ministry of Health, Report of the Committee on Vaccination, 1928.

2. Bohn, H.: Handbuch der Vakzination, Leipzig, 1875.

3. Jenner, Edward: An Inquiry into the Causes and Effects of Variolae Vaccinae, London, 1798.

4. Fröbelius, W.: Eine geschichtliche Notiz ueber die Vaccination in St. Petersburger Findelhause, St. Petersburger med. Ztschr. **16**: 1-28, 1869.

5. Compare Dearing, W. P., and Rosenau, M. J.: Duration of Immunity Following Vaccination Against Smallpox, J. A. M. A. **102**: 1998 (June 16) 1934.

These historical memoranda of Fröbelius [4] are so closely related to our subject that they have been summarized.

Studies conducted to ascertain the possibility of intrauterine vaccination have been almost uniform in revealing the consistent resistance of new-born infants to successful vaccination. The percentage of takes in new-born infants is revealed variously between 32.2 per cent and 100 per cent, averaging perhaps from 60 to 70 per cent.[16]

SOME OF THE OTHER LITERATURE ON VACCINATION

Bohn's [2] Handbuch der Vakzination is a classic presentation of the subject up to 1875, giving in addition a history of smallpox and vaccination prior to its publication. One of his conclusions is applicable at the present day: "We know a variety of things about vaccination, but not much, and a considerable part of these things quite inexactly." ("Wir wissen Vielerei von der Vaccination, aber nicht viel, und darunter Vieles recht ungenau," page 355.)

In 1907 Pirquet's [18] clinical studies on vaccination appeared and advanced the knowledge of this readily induced, artificial, virus disease. He lamented the fact that much which had been known by the older vaccinators had been lost to the present generation and was not even to be found in modern textbooks.

When one attempts to formulate proper concepts of the duration of immunity to vaccination and to smallpox,[19] in the light of what has been said, one almost is forced to abandon the attempt. It may be possible to state cautiously and undogmatically certain facts which relate to the subject:

Skin reaction to revaccination indicates the individual's degree of protection; in the early months following first vaccination he may be completely insusceptible; he may show varying alterations in skin reactivity, particularly after the first revaccination, the early appearance of these, the rapidity of the cycle, and the intensity of the reaction being indications of his state of immunity. The strength of smallpox protection is closely related to that of skin protection to revaccination; complete immunity or insusceptibility to revaccination is a temporary state.

What tissues or organs [20] are concerned in antibody production and protection cannot be positively stated, but protection against variola and revaccination specifically concerns the skin, probably the reticulo-endothelial tissues and possibly others. Vaccinations by other methods than the cutaneous do not take advantage of skin cell susceptibility and probable capacity for antibody production.

Jelinek [21] revaccinated nineteen infants from one to three months after successful vaccination, five of whom reacted with frank pustule formation, areola and glandular swelling.

In the city of Paris in 1930, 78 per cent of 42,137 living new-born infants were vaccinated in the obstetric departments of Parisian hospitals.[22] Successful inoculations amounted to about 67 per cent.

LIMITATIONS OF OUR STUDY

Our study of vaccination in new-born infants was undertaken in 1932 in the nurseries of the Gallinger Municipal Hospital and was hampered by the many limitations of an active maternity service, which made it necessary for us to cease observation of the babies as soon as the mothers were able to go home, on the average when the baby was from 9 to 10 days old. The majority were Negro babies, whose mothers shifted their dwelling places frequently, so that it was generally impossible to follow them in their homes. Seventy-three of these babies were revaccinated in the outpatient department of the Children's Hospital on almost the same day but were not seen again for a week or more, so that the terms immune and nonimmune used in the tables may not be exact, as sufficient opportunity for observation had not been available to employ these terms accurately. But it is to be borne in mind that these were first revaccinations, which if successful are usually not greatly different from first vaccinations. None the less, there may have been early or accelerated reactions that were not observed and therefore not recorded.

TABLE 1.—*Some Previously Reported Vaccinations of New-Born Infants*

Year of Publication	Author	No. of New-Born Infants	Ages	Virus Used	Technic of Vaccination	Percentage of 1st Vaccinations Successful	Comment
1879	Gast	16	2 to 3 days	Human lymph diluted	6 to 12 skin cuts, both arms	100	Severe technic, virulent virus, small group
1882	Behm	33	1 to 7 days	Human lymph undiluted	12 skin cuts, 6 in each arm	76	
1889	Ablass	120	Birth to 3 days	Human and animal, undiluted lymph	3 to 10 skin cuts and scratch	47	Successful: animal lymph 20%; human lymph 80%; severe technic
1889	Wolff	57	8 hrs. to 6 days	42 human, 15 animal lymph	5 to 8 skin cuts 0.5 cm. long	100	Severe skin trauma and thorough rubbing
1901	Palm	43	1 to 3 days	Calf lymph (diluted?)	4 skin cuts	86	
1915	Franz and Kuhner	300	1 to 3 days	Calf lymph diluted	2 to 4 skin cuts; Borer	70	
1921	Mensching	684	1 to 3 days	Calf lymph diluted	4 skin cuts, each 0.5 cm.	72	
1932	Schlossmann and Herzberg-Kremmer	36	Days to weeks	Calf lymph diluted	2 skin cuts, each 0.7 cm.	58	Very slight skin trauma, intentionally
1933	Jelinek	22	9 days to 9 wks.	Calf lymph diluted	Several skin cuts	77	Somewhat older infants
1934	Isaac	808	1 hour or less	Calf lymph diluted	Multiple acupuncture	32.2	Slight skin trauma

16. Isaac, Leabelle: Smallpox Vaccination of the New-Born: Report on 808 Attempts, Am. J. Obst. & Gynec. **27**: 580 (April) 1934.

18. Pirquet, Clemens: Klinische Studien über Vakzination und vakzinale Allergie, Leipzig and Vienna, 1907.

19. Pirquet.[17] Kirsch, O.: Revaccinationsstudien, insbesondere über die Dauer des Impfschutzes (der Hautimmunität) bei der Intracutanimpfung, Ztschr. f. Kinderh. **49**: 1-30, 1930. Alison, A.: Sur la revaccination chez les enfants, Arch. gén. de méd. **7**: 657, 1881. Serrière: On the Loss of Vaccinal Immunity in Infants of Less Than 10 Years, J. de méd. et de chir. **80**: 542, 1909. Sergent, A., and Trensz, F.: De la perte d'immunité vaccinale, Bull. Acad. de méd., Paris **107**: 625 (May 3) 1932.

20. Lereboullet, P.: La splénomegalie vaccinale du nourrisson, Vie méd. **13**: 193 (Feb. 25) 1932.

21. Jelinek, O.: Zur Frühvakzination im Säuglingsalter, Arch. f. Kinderh. **99**: 95-101, 1933.

22. Camus, Lucien: Rapport général annuel sur les vaccinations, Bull. Acad. de méd., Paris **106**: 403, 1931.

VIRUS EMPLOYED

The vaccine virus used was such as may be obtained from commercial biologic laboratories, diluted calf lymph.[23] Special pains were taken to keep it cold. The boxes of capillary tubes were placed in vacuum bottles to which was added a bit of dry ice, well packed, shipped by parcel post special delivery and received by us the following morning. The vacuum bottles were refrigerated at once at a temperature between 4 and 5 C. A day's supply was taken from this temperature in a well wrapped vacuum bottle to the nursery and promptly used.

METHODS OF VACCINATING

The site selected for inoculation of the new-born infant was just below the head of the fibula on the left leg. With the first thirty-eight babies we practiced ten pressures through a drop of virus with the needle held tangentially to the skin surface [24] so that the point broke through the horny layer while the skin was drawn tense, without rubbing. Only twelve results (31.6 per cent) were successful (table 2). Twenty pressures of the needle with slight rubbing was successful in twenty-seven babies (22.2 per cent) and doubtful in four. Thirty-nine received thirty pressures and moderate rubbing of the site with the flat of the needle; in fourteen (36 per cent) this was successful and in eight doubtful. Fifty-seven babies received thirty pressures and marked rubbing of the lymph into the site; in forty-three (75.4 per cent) it was successful and in one doubtful. Fifty babies received thirty pressures and moderate to severe trauma by rubbing with the needle; in thirty (60 per cent) it was successful. It was now clear that the percentage of successful vaccinations with the virus lymph that we were using was increased by rubbing the lymph into the traumatized epidermis. Severe traumatization by thirty strong needle pressures and rubbing of the lymph into the skin with the flat of the needle backward and forward, and in the same way in a direction at right angles to the first, were therefore carried out in the next 289 consecutive vaccinations.

TABLE 2.—*Methods of Vaccinating* *

Numbers	Method: Skin Pressures	Method: Skin Trauma	Vaccinator	Newborn Infants	Successful	Unsuccessful	Doubtful	Percentage Successful
1-38	10	Very slight	H. H. D.	38	12	26	..	31.6
378-400	20	Slight	H. H. D.	27	6	17	4	22.2
405-443	30	Moderate	H. H. D.	39	14	17	8	36
444-500	30	Marked	H. H. D.	57	43	13	1	75.4
39-88	30	Varied	Both	50	30	20	..	60
89-377	30	Severe	M. M. N.	289	260	26	3	90

* More takes result when the virus is rubbed into traumatized skin. New-born babies are very resistant to successful vaccination.

At the conclusion of the vaccination there was a slight serous ooze at the site of inoculation. Two hundred and sixty (90 per cent) of these babies had successful takes.

As has already been pointed out, successful vaccination of new-born infants depends on several factors. Potency of the virus is one of these. The lymph from a vaccination vesicle inoculated into the individual contains the most potent virus. Next to this humanized lymph in potency is undiluted calf lymph. Until recent years the European studies of vaccination in new-born infants were made with humanized lymph, then with undiluted animal lymph, and in the present century diluted calf lymph. When the stronger lymphs were used, successful vaccinations were obtainable with relatively little trauma, but as a matter of fact from two to twelve skin cuts were generally employed. When the lymph is less potent, in order to get generally successful results in new-born infants, the technic of vaccination must include severe traumatization of the skin. This we learned by experience. Primary vaccination is without value unless a take occurs. We therefore worked to secure takes and found that more takes resulted by increasing the skin trauma. It has been pointed out by Pirquet [18] and later by Schlossmann and Herzberg-Kremmer [14] that severe trauma is not desirable from other points of view. When one wishes to ascertain the effect of antiviral antibodies in the baby which have been received from the mother, or when one wishes to observe the altered reactivity or degree of immunity from a former vaccination, it is easy to see that a potent virus vigorously applied to the skin will break through these slight barriers and result in successful vaccination. Our problem was to develop a method that would successfully vaccinate new-born infants, and we worked toward that end. The vigorous technic developed had some disadvantage. Marked differences in new-born susceptibility were found, as had

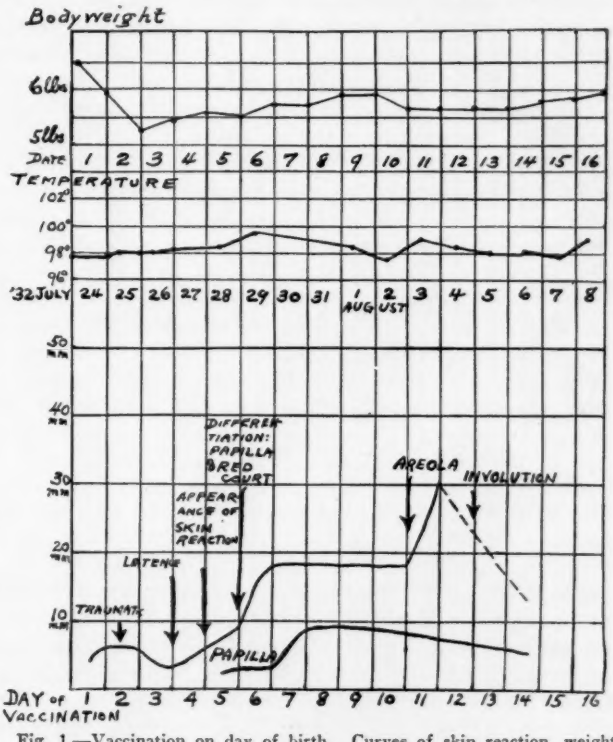

Fig. 1.—Vaccination on day of birth. Curves of skin reaction, weight and temperature.

23. The virus employed in this study was supplied to us gratis by Dr. John F. Anderson, director of E. R. Squibb & Sons' Biological Laboratories. Serials 1 to 377 were vaccinated in 1932 with the same lot, 48784; vaccinating was begun again after an interval of ten months and other lot numbers were used but prepared in the same manner. Dr. Anderson states: "After the pulp is taken from the animal (calf) it is ground into a smooth emulsion and diluted with three parts of sterile 50 per cent glycerin solution. After this has been been thoroughly mixed by further grinding, it is passed through a fine mesh wire sieve to remove the gross particles of tissues. . . . Each batch of vaccine, after this dilution, is tested on rabbits before being filled into the capillary tubes for distribution. The test made is that described some years ago from the National Institute of Health and is performed by vaccinating rabbits with vaccine diluted one part of vaccine in 1,000 parts of physiological salt solution and one part in 3,000 parts of physiological salt solution. It is required that both of these dilutions of the vaccine from every lot must show good takes or otherwise the vaccine is not considered satisfactory for distribution and is disposed of."

24. Leake, J. P.: Questions and Answers on Smallpox and Vaccination, Pub. Health Rep. **42**: 221 (Jan. 28) 1927.

been found since Jenner's time, and has been described. Pustules 20 mm. or more in diameter developed in 10 per cent of our takes. Not all these resulted from vigorous technic, but the majority of them occurred in this way.

THE SKIN REACTION

The papilla usually made its appearance on the fourth day, next most frequently on the fifth day, the day of inoculation being counted as the first day, next the third day, with diminishing numbers on the sixth and seventh days, rarely later (table 3). The maximum size of the pustules was attained on the seventh day most often, next on the eighth, ninth and sixth days; the fifth and tenth days had about the same numbers, with very few on the eleventh and fourth days. The limitation of opportunity for observation, because of the babies being taken home, interfered with the complete records in this regard. Some of the pustules undoubtedly increased in size after the babies left the hospital. Furthermore, their stay was too short for us to observe areola formation in many of the babies, and we feel that discussion of this important phase of the skin reaction must necessarily be omitted. Measurements of maximum size of the pustules, while inaccurate, are perhaps not far from the truth; 61 per cent were under 9 mm. in diameter; 29 per cent were between 10 and 19 mm. in diameter; 27.3 per cent were only 4 mm. or less in diameter, and 10.1 per cent were 20 mm. or more across.

TABLE 3.—*Skin Reaction*

Vaccination Days	Day of Appearance (Papule, Vesicle, Pustule)	Diameter of Pustule: 4 Mm. or Less	5 to 9 Mm.	10 to 19 Mm.	20 Mm. and Over	Number	Per Cent
Third	52	1	..	..	..	1	0.27
Fourth	163	2	..	1	1	4	1
Fifth	103	10	6	9	5	30	8
Sixth	29	18	19	17	5	59	15.8
Seventh	19	32	27	27	8	94	25.1
Eighth	2	25	34	19	8	86	23
Ninth	1	7	25	23	10	65	17.4
Tenth	1	6	13	8	1	28	7.5
Eleventh	..	..	1	4	..	5	1.3
Fourteenth	..	1	1	..	..	2	0.53
Number	370	102	126	108	38	374	100
Per cent		27.3	33.7	29	10.1	100	

CONSTITUTIONAL REACTION

Fever was almost entirely absent. When present it was insignificant and transitory, and we could never attribute it with certainty to vaccinia.

The vaccinated new-born infants behaved in practically the same way as the other babies in the nursery who were not vaccinated. Their appetites were good, their bowel functions normal, and their gain in weight quite comparable to unvaccinated controls.

Suppurative [25] parotitis which bore no relation to vaccination occurred in one of the 500 babies.[26] There were no other fatalities in the group and no significant accidents or complications.

REVACCINATIONS

In order to ascertain whether immunity developed promptly, six babies who were successfully vaccinated at the ages of from 7 hours to 9 days were revaccinated when from 4 to 7 weeks old (table 4). The technic employed was the most severe in this group and in the group of revaccinations to follow, of any that we used; the virus, the vaccinator and the time were all the same. Examination of the babies a week later showed no lesion whatever in four and moderately large pustules in two; nine controls of the same age who had never been successfully vaccinated all had well developed pustules at the end of a week. From this we conclude that four (66⅔ per cent) of the six babies had active, acquired immunity at from 4 to 6 weeks of age. As mentioned, hourly observation might have shown an early or accelerated reaction, but we think this most unlikely as it was their first revaccination and Pirquet states that complete insusceptibility is often present in the early months after the first vaccination. Ablass [27] revaccinated an infant thirty-eight days after successful vaccination at birth and fourteen days after complete healing. He used undiluted humanized lymph, but the result was negative. Furthermore, this is what one would expect from Welch's observations already noted: Two babies born in the Philadelphia smallpox hospital of mothers suffering with varioloid were vaccinated successfully at birth; one spent three weeks and the other four weeks in the smallpox hospital with their mothers and failed to develop this disease.

TABLE 4.—*Active, Acquired Immunity Established in the Early Weeks of Life in 67 Per Cent*

No. of Infant	No. of New-Born Infants	First Vaccination: Ages	First Vaccination: Result	First Revaccination: Ages	First Revaccination: Result	Second Revaccination: Ages	Second Revaccination: Result	Indication of Immunity
378	1	8 hours	0	9 days	Scar 5 × 5 mm.	7 weeks	Pustule 15 × 15 mm.	Nonimmune
408	1	13 hours	0	8 days	Scar 12 × 12 mm.	1 month	0	Immune
429	1	16 hours	0	8 days	Scar 8 × 7 mm.	5 weeks	0	Immune
446	1	28 hours	0	8 days	Scar 5 × 3 mm.	4 weeks	Two pustules 14 × 8 mm., 10 × 10 mm.	Nonimmune
485	1	50 hours	0	6 days	Scar 7 × 7 mm.	4 weeks	0	Immune
438	1	7 hours	Papule 8 × 6 mm., no induration	6 weeks	0	.....	.....	Immune
Totals	6		5 unsuccessful, 1 successful		5 successful, 1 unsuccessful	.....	.....	2-33% nonimmune 4-67% immune
398, 399, 411, 413, 433, 435, 455, 464, 468	9	1¾ hours to 28 hours	0	6 days to 9 days	0	1 to 2 months	Pustules 15 × 12 mm. to 20 × 20 mm.	These are controls: same virus, same method, same time: all had takes

25. Elterich, T. O.: Purulent Parotitis in the New-Born, J. Pediat. **3**:761 (Nov.) 1933.

27. Ablass, Rudolf: Die Impfung Neugeborener, Inaug. Diss., Greifswald, 1889.

Fifty-two babies successfully vaccinated at birth were revaccinated first at from 13 to 16 months of age by our severest technic (table 5). At the end of a week thirty-six showed nothing whatever in some cases and a few small papules in others, while sixteen showed well developed pustules: in fourteen between 10 and 20 mm. in diameter, in one 8 by 7 mm., and in one 30 by 25 mm. From this we conclude that on their first revaccination when between 13 and 16 months of age, thirty-six (69.2 per cent) of fifty-two babies showed complete or almost complete immunity and sixteen (30.8 per cent) were nonimmune or at least had insufficient protection.

TABLE 5.—*Immunity to Vaccinia Found in 69.2 per Cent of Babies 13 to 16 Months Old, Who Had Been Successfully Vaccinated at an Average Age of 24 Hours*

Age When First Vaccinated	Result of Primary Vaccination	Age When Revaccinated	Result of Revaccination	Immunity
Minimum, 3½ hours; maximum, 125 hours	All had successful "takes"	Minimum, 13 months; maximum, 16 months	Successful, 16; unsuccessful, 36	Nonimmune, 30.8%; immune, 69.2%
Average age, 24 hours	Successful	Average age, 14¼ months	Total number, 52	Immune, 69.2%

TABLE 6.—*Questionnaires Returned by Mothers of Vaccinated New-Born Infants*

Questions	Yes	No	No Answer	Total	Yes, per Cent
1. Is your baby vaccinated by us at birth getting on well?	158	8	..	166	95
2. Did the vaccination get along all right?	156	9	1	166	94
3. Would you want us to vaccinate another baby in the same way?	138	20	8	166	83
	Small	Moderate	Large	None	No Answer
4. What kind of a scar was left?	88	3	57	16	2

ATTITUDE OF THE MOTHERS

One hundred and sixty-six of the mothers answered and returned questionnaires relating to their babies who had been vaccinated by us at birth (table 6); 95 per cent stated that their babies were well; 5 per cent of them had died of other causes; 94 per cent stated that the vaccination had gotten along well; 138 (83 per cent) stated that they would want us to vaccinate another baby in the same way if one should arrive, whereas twenty (12 per cent) said no and eight (4.8 per cent) made no answer. Eighty-eight mothers regarded the resulting scar as small, fifty-seven as large, and three as moderate in size.

COMMENT

In 289 consecutive vaccinations of new-born infants with the best adaptation of technic of inoculation to our virus that we could develop, 10 per cent of the infants were resistant to success of their first vaccinations. There is certainly a resistance in new-born infants beyond that of older infants and children. Vaccinators from Jenner's time to the present have almost consistently found this to be true.

Passive immunity, as demonstrated by the presence of humoral antibodies for the first two or three months of life in a certain number of infants, all too inadequately explains this resistance.

In line with the idea that young, growing tissue may account in part at least for resistance to vaccination manifested by new-born infants is what one finds on analysis of Mensching's [13] results in the vaccination of 684 new-born infants. Eighty-two of them were premature. Of the successful inoculations, 72 per cent were full term babies, in contrast to 63 per cent of successful results in premature infants. In other words, premature infants offered considerably greater resistance to vaccination than babies born at term; their tissues were younger and growth was more active.

There appear to be notable differences in potency of vaccinia virus, and there are no definite standards by which potency may be judged. The standard enforced by the National Institute of Health [23] is doubtless adequate for practical purposes, but it scarcely measures potency so that lymphs in different parts of the world may be compared. Hence it is difficult to make comparisons of successful vaccinations reported by different workers. The size of the skin reaction and rapidity of its appearance depend on the quantities and strains of inoculated virus. Pirquet [18] has shown also that dilution of virus lymph retards the skin reaction by a day or two.

The technic of inoculation is closely related to the quantity of virus introduced. But there is another factor in technic besides the quantity of virus introduced. This is the factor of skin trauma, the real damage to cells susceptible to reception and the multiplication within them of vaccinia virus. The most successful method employed by us injured epidermal cells into which the virus was rubbed in addition. The papillary layer and the upper subcutaneous tissues must have been traumatized by the severe rubbing with the flat of the needle after pressures with its point which broke through the horny layer and cut into the epidermis. A serous ooze was present at the end of the procedure.

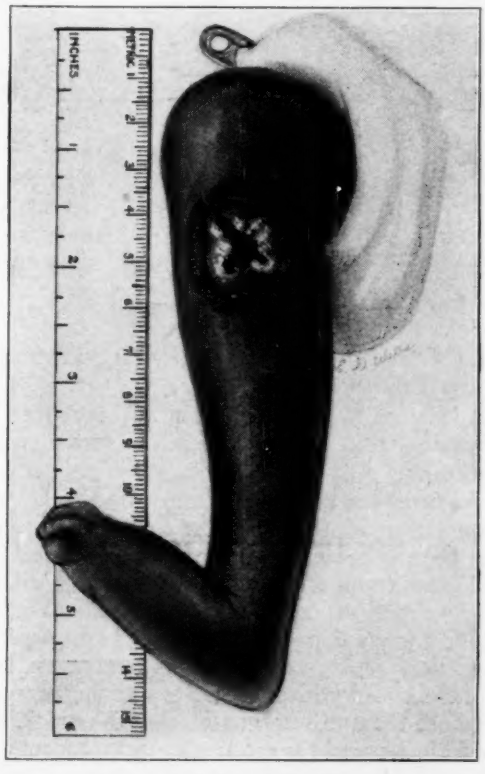

Fig. 7.—Size of pustule: 10.1 per cent of the takes.

Well refrigerated virus the relative potency of which has been learned by experience with it, and adoption of a suitable technic of vaccination for the particular virus in use, will give a proportion of takes amounting to 90 per cent or more, even in resistant new-born infants. Repetition of vaccination of first failures generally results in takes, although repeated revaccination may be necessary. Both physician and patient abandon

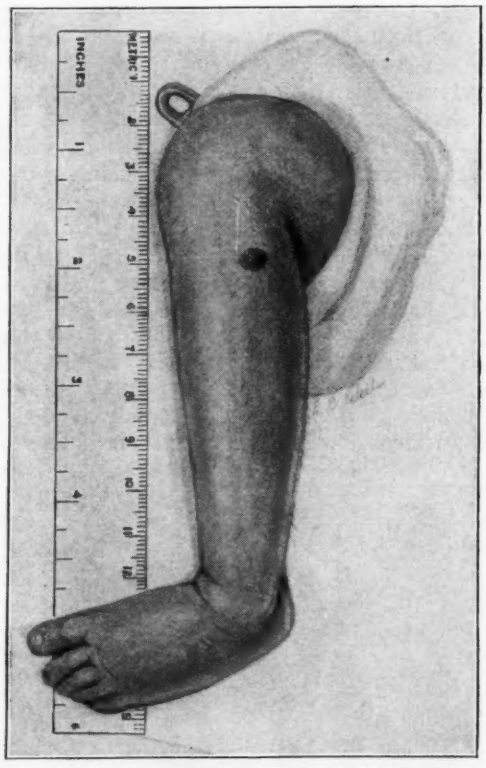

Fig. 8.—Size of pustule: 27.3 per cent of the takes.

too readily the effort. Variability in individual susceptibility is difficult or impossible to gage.

What change if any may result in our technic and what results from the use of purer virus grown on tissue mediums remain to be seen.

In reporting our results, we stated that sufficient time for observation of the complete course of vaccination had not been possible because of the babies leaving the hospital, and for this reason facts with regard to full areola development could not be given. We had an opportunity in exceptional cases (fig. 1) to observe the skin reaction well into involution and even healing. From these observations we have a strong impression, but no more than an impression, that the areola formation, even at its peak, is relatively slight, by comparison with that of older children (figs. 2 and 3). The figures given for the size of pustules convey a similar impression (figs. 7, 8 and 9). Gast[15] reported in 1879 the same thing in vaccinations of sixteen new-born infants. His protocols, however, in each case showed observation of the skin reaction after an interval of a week following inoculation. This was insufficient for exact observation on this point. Ablass,[27] on the other hand observed his cases generally through completion of the local process or longer and states with emphasis that in new-born infants it is extremely moderate by comparison with older children, and particularly that the areola in new-born infants was relatively slight. Other observers have stated the same thing, while Franz and Kuhner,[12] among a few others, state that the skin changes are essentially similar to those of older children.

SUMMARY

1. Smallpox vaccination of new-born infants is a safe procedure with negligible complications, with insignificant influence on growth and nutrition, and almost always without fever.

2. The skin reaction tends to be smaller and slighter in extent and leaves behind small, superficial scars when Leake's method is used.

3. Adjustment between potency of virus and inoculation technic may insure at least 90 per cent of successful results on first vaccination.

4. Since Jenner's time, vaccination of new-born infants has been practiced successfully.

5. New-born infants are highly resistant to successful results, possibly because of the resistance of growing, young tissues; but other factors mentioned may have an effect, as well as still others at present unknown.

6. Our study shows that active, acquired immunity may develop promptly and may persist well over a year, probably longer.

7. Observations on foundlings in St. Petersburg (Russia), vaccinated shortly after birth and continued until they were 25 years of age revealed among many

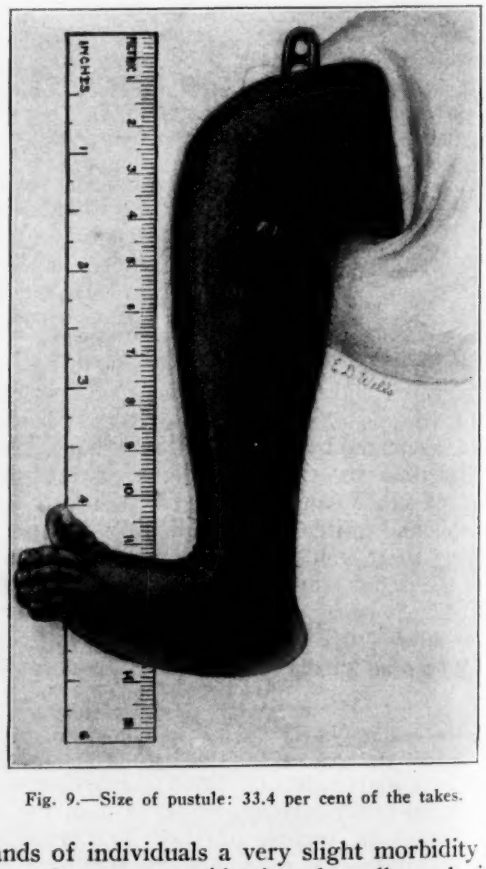

Fig. 9.—Size of pustule: 33.4 per cent of the takes.

thousands of individuals a very slight morbidity in the presence of seventeen epidemics of smallpox during the forty years 1826-1866.

8. Vaccination at birth is a practicable means of increasing protection against smallpox in a large group of society in which it is most needed, who are prone to do without this protection for themselves and the community until forced to obtain it at school age.

9. For those who will procure vaccination between 3 and 6 months of age, when it is more easily performed with success, it need not be done at birth.

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ABSTRACT OF DISCUSSION

DR. J. A. DOULL, Cleveland: The authors have made the interesting observation that the relative resistance of new-born infants to vaccinia, which has long been recognized, can be broken down merely by increasing the amount of trauma. With safety and the apparent effectiveness of this procedure established, the question naturally arises as to its importance in public health. At present the most common practice in the United States is vaccination at the time of school entrance. Vaccination at this age carries with it certain more or less remote hazards, which can be to a great extent obviated if vaccination is carried out in infancy. Vaccination as early as the first day, however, or even in the first week of life has another angle, which may cause a good deal of embarrassment not only to the physician performing it but to the public health profession. The first day and the first week are the time of greatest mortality from other causes, and death may be attributed, erroneously, to vaccination. This should be recognized by the physician when he applies smallpox vaccination as early as that period. A good deal of public health effort has gone into the achievement of immunization against diphtheria and against smallpox at 6 months of age. I agree with the authors that this is the policy which should be emphasized not only by public health authorities but by pediatricians. There is, however, I believe, a field for the authors' technic and it is this: In the presence of a smallpox epidemic it is well for physicians to recognize the fact that successful vaccination may be carried out in the new-born. As was emphasized, there is a group of people, perhaps the colored population of the South may be mentioned, which is exceedingly difficult to follow during the first year of life, and it may be that in this group the method will have a practical application.

DR. FRANK P. GENGENBACH, Denver: Last fall there occurred a small outbreak of smallpox in the Colorado General Hospital in Denver, starting with a case that had come in for another purpose. As a result, the rule went forth that every child and every patient in that institution must be vaccinated, and this included new-born infants. This vaccination was continued from Oct. 19, 1933, to May 10, 1934, when it was felt that the outbreak had been successfully controlled. Practically all the new-born were vaccinated on the second day. The total number vaccinated was 184. One premature infant required revaccination. There were about twenty-five infants that required revaccination, apparently because a particular supply of virus had lost its potency. However, these were all revaccinated, and all the infants left with good scars and without complications. In the meantime, through the efforts of the Visiting Nurses' Association and the prenatal clinics in Denver, the mothers were gradually educated to the idea of having their new-born babies vaccinated at the Denver General Hospital, which is the county hospital, the Colorado General being the state hospital. As the mothers found that no bad effects followed, they were quite willing to give this permission. As a result, they now have practically 100 per cent cooperation. From May 1, 1933, to Dec. 31, 1933, 452 new-born babies were vaccinated, all successfully, and from Jan. 1, 1934, to May 31, 1934, there were 307 new-born babies vaccinated, a total of 759.

DR. J. P. LEAKE, Washington, D. C.: I feel that the best service can be done to the new-born infant and its mother by vaccinating very early in life. The difficulty later, after it has passed out of the hands of the medical profession for anything except exceptional circumstances, is too great to let that opportunity slip. I should like to emphasize, too, what the authors said regarding the necessity of going into the literature and observing carefully primary vaccinations, preferably on the tenth and fifteenth days after vaccination, and secondary revaccination on the second or possibly the eighth day as the minimum. This observation and this vaccination, if research is to be made on the subject, cannot be left to the interns who are not thoroughly familiar with vaccination from day to day and hour to hour in all its phases, and with the various literature. All are doubtless aware of the danger from tetanus, particularly in the use of vaccine shields. I might also add that any one who applies a dressing primarily at time of vaccination, attached to the skin, has just as little defense in case tetanus supervenes as one who does not use tetanus antitoxin in case of a trivial wound.

DR. H. H. DONNALLY, Washington, D. C.: I understood Dr. Gengenbach to say that he had had 100 per cent of successes, excepting a group of twenty-five babies vaccinated with a batch of bad virus and one premature infant whose first vaccination was unsuccessful. That is remarkable for so large a number. Ablass, Behm, Palm, Franz and Kuhner, Mensching, Schlossmann and Hertzberg-Kremmer, and a few others found in the literature, as well as ourselves, had difficulty in getting takes in new-born infants even though some of these authors used arm-to-arm inoculation, the humanized virus, which is the most virulent and produces the greatest number of successes. Next in virulence is the undiluted calf lymph, and finally diluted calf lymph. It would have been interesting in connection with this report of successes, if Dr. Gengenbach had told the technic and virus used, and who did the work, as well as whether the takes resulted from one inoculation or whether repeated inoculations were necessary. If a series of inoculations are given, it is possible to achieve success even though one vaccinates an infant as often as twelve times, which has been done. I think that this fact might emphasize the point that one should not give up when failing with one, two or three attempts, but keep on, and finally a successful inoculation may be obtained, which alone gives protection.

SPECIFIC DIAGNOSIS AND TREATMENT OF ALLERGIC DISEASES OF THE SKIN

PRESENT STATUS

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PEARL RIVER, N. Y.

If one should inquire which of the existing medical specialties would profit especially through a deeper knowledge of allergic disease, one would necessarily think first of dermatology. Some may suspect an ironical sense in this statement because of the fact that the sharpest criticism of the common diagnostic procedure used by allergists has come from dermatologists. However, the statement is not so intended, and it is really based on the fact that every recognized category of allergic disease affects the skin.

Thus, among the diseases of the skin the familial allergy (hay fever-asthma group) is represented by atopic eczema. This is sometimes proved to be due to allergens of the same type as those causing the other atopic diseases; the second category is epidermal allergy or contact dermatitis, a form of allergic sensitivity that is not familial and affects only the skin; the third form is the cutaneous manifestation of infectious allergy (type of tuberculin sensitiveness). Besides these there are the unclassified serum sickness and the similar condition caused by drugs; also the skin manifestations of "physical allergy."

The formulation of the problems of allergy, as well as the practical diagnosis and treatment of allergic diseases, requires the tentative classification of these conditions, and Dr. Sulzberger and I have attempted to present in tabular form the corresponding classification of three allergic conditions of the skin. This classification has been prepared from a practical point of view

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rather than a scientific one and it is incomplete, because it does not include the pathologic differences, which are illustrated in the exhibit of Dr. Sulzberger and Dr. Wise.

It is impossible in this short space to discuss the table in detail and I shall emphasize only the following points of comparison between the first two categories: 1. In atopic eczema the excitants are antigens, i. e., produce antibodies (reagins), whereas in contact dermatitis they are nonantigens; i. e., no antibodies can be demonstrated. 2. The skin test in the inherited atopic eczema is made with aqueous extracts with the scratch method or by intracutaneous injection, whereas that in contact dermatitis is best made with an original raw material by surface contact (the patch test). This original material, if it is a fluid, may have to be diluted. It is not necessary to use an extract of the solid materials. One has no choice in the selection of the technic of skin testing in these two categories, because the patch test with aqueous extracts regularly results negatively in the familial allergies while the intracutaneous and scratch tests are often negative with the extracts in contact dermatitis. 3. Finally, in the case of the vegetable oils, the treatment of contact dermatitis by desensitization, when avoidance is impossible, is usually successful; this stands in marked contrast to the experience, up to the present time, in the similar treatment of contact dermatitis due to excitants other than the vegetable oils. In atopic eczema due to a food, on the other hand, I am informed that the results of injections have been disappointing.

The differences I have just mentioned may be illustrated in the following two cases of sensitivity:

Patient A has suffered for years from a dermatitis affecting the cubital areas, the popliteal spaces and the skin behind the ears. The intracutaneous and scratch tests with aqueous extracts of wheat flour are positive; patch tests with the flour are negative, the dermatitis disappears when the patient stops eating foods containing wheat derivatives, and it recurs when wheat is returned to the diet. The result that follows attempts to desensitize this kind of case is usually unsatisfactory.

Patient B suffers from an eczematous eruption during the late summer. Patch tests with ragweed leaf or the extracted oil are positive and there is no wheal reaction to intracutaneous tests with ragweed protein. The proper treatment in this case is by the injection of a solution of the extracted oil of the plant. This treatment is successful in most instances.

From the foregoing brief discussion alone, it is plain that, in order intelligently to test and treat one of these two conditions, the physican must first determine, if possible, to which group his patient belongs. This he may attempt to do by consideration of the distribution and character of the lesions, especially of typical early lesions, by the history of the case, and by inquiry as to the family history of inherited allergy. This decision is sometimes difficult or even impossible and in such a case the physician must make the tests with the suspected materials both with the aqueous extracts in the abraded skin and with the raw materials in the patch test.

It must be admitted that the specific diagnosis and treatment of atopic eczema has been in many cases disappointing. Indeed, one has the impression from pediatricians experienced in allergy, that this is rather an understatement of the facts. The general opinion seems to be that even the transferable positive skin reactions do not give reliable information regarding the excitant of the condition.

However, this experience is not different from that commonly encountered in the study of bronchial asthma and to some extent also in hay fever subjects.

*Classification of Three Common Types of Allergic Skin Diseases as Regards Specific Etiologic Diagnosis and Treatment**

	Nature of Excitants	Nature of Skin Test Material	Technic of Test	Reaction Time	Nature of Positive Reaction	Specific Treatment
Atopic dermatoses (familial occurrence)	Water soluble antigens, food proteins and inhaled substances	Aqueous extract or dried extract	Intracutaneous scratch, or indirect	5 to 10 minutes 20 to 30 minutes	Wheal and erythema, reaginic	Avoidance, if practicable; if not desensitization may be tried
Contact dermatitis (nonfamilial)	Thus far nonantigenic substances, often simple chemicals and vegetable oils	Original material, suspected substance or extracted vegetable oil	Surface contact or patch test	Usually several hours to several days	Erythematous or vesicular dermatitis, no antibodies	Avoidance, if practicable; in the case of vegetable oils, desensitization usually successful after 3-4 injections
Fungous dermatitis (eczematous dermatophytids)	Products of hyphomycetes and molds	Filtrate of broth culture	Intracutaneous or patch	Usually several hours to several days	Inflammatory papule and eczematous dermatitis, no antibodies	Desensitization is often successful but often tedious

* According to A. F. Coca and M. B. Sulzberger.

The pessimistic expression of opinion as to the difficulties attending the specific diagnosis and treatment of atopic eczema are somewhat relieved by two recent progressive suggestions. Charles Mallory Williams has reported two instances of atopic dermatitis which cleared up after the surgical eradication of purulent infection of internal organs. These cases suggest that, like some cases of bronchial asthma, atopic eczema may sometimes be of infectious origin and not due to a sensitivity to a specific excitant mediated by reagins.

The second suggestion was made last year by M. B. Sulzberger.[1] It consists in the idea that atopic eczema may sometimes be due to specific sensitivity to inhaled substances. Dr. Sulzberger allows me to state that in a forthcoming paper he will describe just such a case, in which sensitiveness is shown to inhaled particles of silk though not to surface contact with silk.

The practical value of these two suggestions has yet to be tested in a group of suitable cases, and the treatment of the atopic category remains for the present in an unsatisfactory state.

On the other hand, the practical handling of a certain number of cases of the second category (contact dermatitis from plants) and of the allergic manifestations of

1. Sulzberger, M. B., in discussion on Walzer, Abraham, and Grolnick, Max: J. Allergy 4: 554 (Sept.) 1933.

fungous infections (the third category) has been distinctly improved through two different influences.

The diagnosis of contact dermatitis has been facilitated by the recent greater employment of Jadassohn's surface or patch test, and the proper manner of applying specific treatment of this condition has been indicated through the demonstration that the excitant of contact dermatitis in ragweed pollen is not the antigenic atopen that excites hay fever but an oily substance.[2] This oil has since been found to be as abundant in the ragweed leaf as it is in the pollen.

I have pursued this question with the cooperation of several clinicians in different parts of the country, some of whom will make individual reports of their cases. Most of these observers have obtained a high percentage of satisfactory results, which have been particularly impressive in those instances in which exposure was continuous during the treatment or after the lesions were healed. The weekly intramuscular injection of 0.5 cc. of a 1 per cent solution of the extracted oily substance dissolved in sterile almond oil has in a number of cases brought quick healing, and protection on subsequent natural exposure.

Some cases have been complicated by a multiplicity of excitants and in some instances the failure of treatment may have been due to the physician having overlooked an additional unsuspected excitant. If exposure is continuous, it is easy to determine how long the interval between the injections can be made without danger of recurrence of the lesions. This period in one case was about five weeks.

The second suggestion comes out of the finding by M. B. Sulzberger[3] that the allergic excitant of Monilia (Oidium) is specifically different from that of the trichophyton group and has materially broadened the range of effectiveness of the desensitization treatment of some cases of obstinate fungous infection, for which there seems to be no other means of relief.

I have treated three patients according to Sulzberger's plan, all of which were much more sensitive by skin test to oidiomycin than to trichophytin. One of the three, a traveling salesman with large lesions on both forearms and elsewhere on the body, was unable to take the injections regularly and during the few months of his treatment his skin sensitivity remained stationary and his local condition remained unchanged. This case was later seen to be one of psoriasis.

Both of the other patients are completely free of their lesions, which had persisted in one for about two years and in the other for five years. Both had used various local treatments without benefit. In one, the condition began with an infection of the left thumb nail and spread to the skin of other fingers. After the injections with a mixture of trichophytin and oidiomycin were begun all local treatment was discontinued. After two months of weekly injections the condition was decidedly improved and two months later the treatment could be stopped entirely. There has been no recurrence in the succeeding five months.

In the third case the sensitivity increased markedly and the injection was followed quickly by an extension of the areas involved (both forearms and ears) with a decided reddening of the lesions and a lessening of the scaliness. The solution was diluted 1:100 and the interval before the next and also the following injection was increased to nine and ten days respectively. By the fifth month the skin sensitivity had diminished so that the strength of the solution could be increased more than 300 times. The lesions were improving but the patient discontinued the treatment. Three months later all the lesions had disappeared and they have not recurred during the succeeding four months.

2. Brown, Aaron; Milford, E. L., and Coca, A. F.: J. Allergy **2**: 301 (July) 1931.
3. Sulzberger, M. B.: J. Immunol. **23**: 73 (July) 1932.

CONCLUSION

It may be fairly stated that the recent researches on the allergic diseases of the skin have materially extended the understanding of them and have definitely improved the specific methods of their diagnosis and treatment.

ACNEFORM ERUPTIONS OF THE FACE

ETIOLOGIC IMPORTANCE OF SPECIFIC FOODS

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CHICAGO

The etiologic importance of various articles in the diet in acne vulgaris has been a matter of dispute for a long time. The appearance of papular and papulopustular eruption on the usual areas of acne due to certain medicaments, especially iodide, is a well accepted clinical observation.

In a recent summary of the treatment of acne vulgaris, Wise and Sulzberger[1] state that, while clinical experience tends to show that a diet high in carbohydrates and sweets seems to make some acne cases worse, there is not an iota of scientific evidence that there is any disturbance of carbohydrate metabolism in acne. In many thousands of acne cases that have been examined by careful investigators, the average blood sugar and average sugar tolerance are in most instances normal. The latest substantiation of this opinion is the recent paper of Strickler and Adams.[2] They conclude that while a diet rich in sugar or the carbohydrates may be inimical for certain patients with acne vulgaris, laboratory examinations do not substantiate any actual changes in the blood sugar.

Urbach and Schmidt[3] state that the cloak of darkness covering the principal question whether a patient with acne or with seborrhea is harmed more by excess of fat or carbohydrate has not yet been lifted. All in all, the evidence of the literature is that there is little real scientific foundation for the causation of ordinary acne vulgaris by the general classifications of foods.

A series of thirty-two cases has been studied in which there was a recurrent papular and papulopustular eruption of the body involving the usual areas in which acne vulgaris is ordinarily found. Some patients also had deep scars in these areas. These acneform eruptions have been found in these instances to be due to a specific food or foods; my opinion is still reserved as to the definite place of diet in ordinary acne vulgaris. This type of eruption varies from the ordinary acne in that there are no comedones and no seborrhea of the face or scalp, and in that it had not responded to the

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Read before the Section on Dermatology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

1. Wise, Fred, and Sulzberger, M. B.: Rôle of General Practitioner in the Modern Treatment of Acne Vulgaris, Practical Medicine Year Book, Dermatology and Syphilology **7**, 1933.
2. Strickler, Albert, and Adams, P. D.: Blood Sugar Metabolism in Certain Dermatoses, with Special Reference to Acne Vulgaris, Arch. Dermat. & Syph. **26**: 1 (July) 1932.
3. Urbach, Erich, and Schmidt, F. R.: Skin Diseases and Nutrition, Vienna, Wilhelm Mandrich, 1932, p. 117.

usual acne therapy. The roentgen therapy may have caused these ordinary acne manifestations to have disappeared and the etiology of the residual eruption which persisted was determined to be either a single or a multiple food sensitization. A recent paper [4] was published illustrating the preliminary studies of this type of eruption, in which one case was described in detail. Nine other cases of similar type are now being studied and as yet the rôle of a specific food or foods has not been ascertained; it is well recognized that other factors may at times be responsible.

In general aspects, these patients presented about the same history. Their ages ranged from 17 to 36; twenty were females and seven were married. The longest duration in any one patient was seventeen years. All the patients gave a history of receiving from twelve to thirty roentgen treatments with only temporary benefits. Four presented definite evidence of radiodermatitis on the face; i. e., localized areas of telangiectasia and atrophy were present on the cheeks. They had received the usual local treatment of lotions. Many had been placed on a low carbohydrate diet and others had had some general dietotherapy. A series of cases are now being studied which seem to fall in this group and have had no roentgen or ultraviolet treatment. It is still my experience that up to a certain limit roentgen therapy cannot be dispensed with in treatment of severe acne vulgaris.

All patients were in excellent general health. Endocrine studies, especially as to possible thyroid and ovarian disturbances in the female, were of little practical importance. Some did have a menstrual exaggeration, but this disappeared entirely in the series as the patient's eruption became less and less noticeable. Thyroid administration in cases in which it was indicated did not improve perceptibly the acneform eruption. The usual blood counts did not reveal any obvious anemia or blood alterations. The ordinary foci of infection, such as the teeth and tonsils, were investigated and did not show any clinical importance. Ordinary laboratory procedures showed no abnormal deviation.

The usual skin food tests were performed in a small number. As their importance in eliminating the causative foods was practically negligible, they were not continued because of the added expense and time to the patients. All patients were observed in private practice. The Prausnitz-Küstner method of passive transfer will be used at the first opportunity.

The sudden recurrences suggested that specific food or foods sensitization might be the etiologic agents. Rowe [5] has stated that a patient who had had severe attacks of urticaria had been put on eliminating diets. Elimination diets relieved all her urticaria symptoms, including a severe, long standing acne on her face. He found that in this particular patient grapes and cantaloup caused her facial eruption to reappear. Unger [6] has observed a somewhat similar case due to eggs. In general, few allergic symptoms have been present in this series. The precipitating cause of the sensitization to these foods and to localization in these areas is only conjecture at this time.

Wise and Sulzberger [1] are of the opinion that the ill effects of a relatively high intake of sweets and starches may be due not so much to the actual high total carbohydrate intake but rather to an idiosyncrasy in reaction toward certain specific items in the carbohydrate diet. They particularly mention chocolate in any form and white bread. However, they stress that the etiologic agent in a person eating bread the eruption on the face may be due to so-called baking improvers that contain a high percentage of potassium bromate. The bromate in the baking process becomes reduced to bromide.

Theoretically, any food may cause such an acneform eruption; in this series the six most common were chocolate, milk, wheat, oranges, tomatoes and nuts. Some cases presented multiple food sensitization; in others, certain combinations produced new lesions. The causative food allergens were largely determined by using so-called elimination diets or "nonallergic" trial diets. As stated, the usual cutaneous food tests were of little or no value in the detection of the etiologic ingestant or ingestants.

The detective method of finding the causative foods was to place the patient on a nonallergic diet for one week, using as a basis the elimination or trial diets of Rowe.[7] Only a minimum number of foods should be selected. In regard to a strictly balanced diet, I agree with Feinberg,[8] who says he sees no need for a strictly balanced trial diet since the first diet is only used for a period of a week or two. Caloric requirements should be fulfilled, of course, especially in those who may be somewhat underweight, but slight deficiencies in minerals and vitamins for the periods involved need not cause concern. If a vitamin or mineral deficiency is feared, these materials can be added in concentrated form. If no lesions appear in a week's time, one can add a new food every two days, adding at first the least allergic ones. If the offending food was added, new lesions usually appeared in from two to six hours. Occasionally it took from twelve to twenty-four hours in some patients. This method had to be altered to fit the individual, and the diet has to be changed to meet the dietary demands of the patient, especially when a careful history showed that certain foods have not caused any new lesions as far as the patient has been able to detect. It simmered down to an individual study in each case. With a thorough knowledge of diet, one can use Rowe's elimination diets or those of Dale and Thornburg [9] or those of Hopkins and Kesten.[10] Rowe's diets with some variations were used in this series. That the constituents of certain foods have to be thoroughly known is strikingly illustrated in what is called rye bread. Lespinasse [11] has surveyed the rye bread in Chicago and finds that there is no such thing as rye bread. She found that rye bread in Chicago contains anywhere from 10 to 60 per cent of wheat. Other foods may be the cause of similar trouble.

Treatment of these cases consists naturally in the elimination of the causative foods when possible. There are four accepted methods of treating these food idiosyncrasies. These are well summarized by Urbach.[2] The first has already been mentioned; that is, omitting the food. The second method consists in forbidding all animal and vegetable proteins for two weeks, as it is

4. White, Cleveland: Food Sensitization Dermatoses, Especial Consideration of the Primary Type of Acneform Distribution, J. Allergy **4**: 151 (Jan.) 1933.

5. Rowe, A. H.: Food Allergy, Philadelphia, Lea & Febiger, 1931, p. 113.

6. Unger, Leon: Personal communication to the author.

7. Rowe, A. H.: Food Allergy: Its Manifestations, Diagnosis and Treatment, J. A. M. A. **91**: 1623 (Nov. 24) 1928.

8. Feinberg, S. M.: Allergy in General Practice, Philadelphia, Lea & Febiger, 1934.

9. Dale, Jane, and Thornburg, H. D.: Diets for the Identification of Food Allergies, J. A. M. A. **93**: 505 (Aug. 17) 1929.

10. Hopkins, J. G., and Kesten, B.: Specific Sensitivity in Eczema, Tr. Internat. Dermatol. Conference, 1931.

11. Lespinasse, Victoire: The Wheat Contents in Rye Bread, to be published.

stated that this method is beneficial only in cases of food idiosyncrasy of short duration. Naturally, this has been of no help in these cases. The third method is active desensitization by very gradually increasing the amount of allergen, by either the oral or the intracutaneous method. Oral administration with small doses of the offending food has been quite helpful in certain cases. Active desensitization by intradermal injections has not been used because of the technical difficulties and lack of assurance that it would produce a cure. The fourth method is based on the principle of skeptophylaxis, which usually induces complete desensitization if the method is carried out for three or four weeks. With the term skeptophylaxis Lambert, Ancel and Bouin [12] designated the following phenomenon: If an individual, from three quarters to one hour preceding the ingestion of fairly large amounts of an anaphylactic producing drug, food or peptone is given minimal amounts of the same drug, it is possible to prevent the occurrence of an anaphylactic reaction otherwise certain to occur. The mechanism of skeptophylaxis may be explained on the basis of what Besredka and Otto called antianaphylaxis. Nonspecific methods, as the use of the peptones in treating nutritive allergic dermatoses, have also been used.

This brings up the question of using specific peptone therapy, which was first brought into practical usage by Luithlen.[13] He termed these partially broken down peptones propeptan. Neither the use of his and Urbach's [14] specific food propeptans nor the use of ordinary peptone has been of any value in this type of food sensitization. Oral peptone therapy in my opinion has been of marked benefit in some eczematoid allergic dermatoses, as suggested by Miller.[15]

In patients who are not sensitive to certain fish livers or corn oil, viosterol can be used to raise the patient's threshold at times to certain foods. Yeast has been used by practically all; in several, it caused new lesions. The use of viosterol in acne was recently brought forward by Doktorsky and Platt.[16] Along this line, ultraviolet irradiation is a definite aid in raising the resistance to certain foods in some cases. In several young women the viosterol caused such irregular menstruation that its further use was abandoned. Use of the vitamin D as viosterol and ultraviolet irradiation has prevented new lesions, which had occurred from previously taken smaller amounts of allergic foods in several patients.

CONCLUSIONS AND SUMMARY

Specific food or foods have been found to be the cause of an erythematopapular and papulopustular eruption of acneform distribution in some thirty-two cases. Scarring occurred in some cases.

The usual roentgen treatment for acne vulgaris had been given in other hands with only temporary results; unfortunately, four presented definite evidence of too much roentgen treatment.

The causative food allergens had been determined by the use of elimination or "nonallergic" trial diets, as the ordinary skin tests were of little or no value.

122 South Michigan Avenue.

12. Lambert, Ancel P., and Bouin, P.: Compt. rend. Soc. de biol. **61**: 350, 1911.
13. Luithlen, F.: Wien. med. Wchnschr., 1926, p. 907.
14. Urbach, Erich: Klin. Wchnschr. **9**: 2046 (Nov. 1) 1930.
15. Use of oral peptone therapy was suggested by Dr. Joseph L. Miller to the author in the discussion of the latter's paper "Eczematoid Sensitization Dermatoses—Diagnosis and Treatment" before the Central Society for Clinical Research in October 1933.
16. Doktorsky, Abraham, and Platt, S. S.: Vitamin D in the Treatment of Acne Vulgaris, J. A. M. A. **101**: 275 (July 22), 1933.

LIGHT SENSITIVE DERMATOSES

NELSON PAUL ANDERSON, M.D.
AND
SAMUEL AYRES JR., M.D.
LOS ANGELES

The problem of light sensitivity is one in which the final solution will probably be found by the biochemist. It appears to be bound inseparably with sulphur metabolism, and through sulphur metabolism with the amino acids and perhaps also the vitamins.

A review of some of the recent work on sulphur metabolism is certainly pertinent to the question of light sensitivity. Harris and Hoyt [1] subjected paramecia to the effect of ultraviolet rays that had previously passed through a solution of cystine $\left[CH_2S{-}CH(NH_2){-}COOH \right]_2$ in sodium hydroxide. They found that the time of exposure required to produce fatal results was 1,200 seconds if the ultraviolet rays first passed through the cystine solution, as compared with 150 seconds in the controls. From this they argued that the susceptibility of protoplasm to ultraviolet radiation was conditioned by the selective absorption of the toxic rays by cystine and certain aromatic amino acids. Confirmation of this effect was accomplished by the study of Ward [2] on the absorption spectrums of amino acids. He found that cystine was the only amino acid that had any marked absorption in the region of solar ultraviolet rays. In the following year Lewis [3] made the suggeston that the relatively high concentration of cystine in wool and hair was of physiologic significance in the protection of the organism against the harmful effects of prolonged exposure to sunlight. Ward further called attention to the fact that the curious custom of the Arabs of wearing heavy woolen clothing may have a strong justification in the protective effect of the cystine in the wool.

The following remarks are taken from Smith's [4] monograph, a review of the subject of sulphur metabolism and the relation of cystine to solar irradiation. About 1920 Sullivan and his co-workers [5] suggested that there was an abnormal sulphur metabolism in pellagra. Others,[6] however, as early as 1910 had reported such abnormalities.

It appears rather definitely that the demands of the organism for sulphur are supplied largely by that sulphur-containing amino acid cystine. This amino acid is necessary not only for the growth but for the maintenance of animals as well.[7] The function of cystine in the organism appears to include not only an important bearing on the oxidation of tissue through the reversible cystine ⇆ cysteine reaction,[8] but also a detoxifying influence on certain compounds, one of

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Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the authors' reprints.

1. Harris, F. I., and Hoyt, H. S.: Science **46**: 318, 1917.
2. Ward, F. W.: Biochem. J. **17**: 898, 1923, cited by Smith.[4]
3. Lewis, H. B.: Sulphur Metabolism, Physiol. Rev. **4**: 394 (July) 1924.
4. Smith, J. H.: The Influence of Solar Rays on Metabolism, Arch. Int. Med. **48**: 907 (Nov., part 2) 1931.
5. Sullivan, M. X., and Dawson, P. R.: Studies in the Biochemistry of Sulphur: II. Further Studies on the Distinctive Reaction for Cysteine and Cystine, Pub. Health Rep. **44**: 1421 (June 14) 1929; Sulphocyanate in Pellagra, J. Biol. Chem. **45**: 473 (Feb.) 1921.
6. Kahn, Max, and Goodrich, F. G.: Sulphur Metabolism, Philadelphia, Lea & Febiger, 1926, p. 254.
7. Lewis, footnote 3, pp. 401, 418 and 447.
8. Dakin, H. D.: Physiological Oxidations, Physiol. Rev. **1**: 394 (July) 1921. Lewis.[3]

which at least, cyanogen, is a product of protein metabolism.

The high content of sulphur and cystine in epithelial protective tissue, e. g., the horny layers of the skin, hair and nails, a content greater than that of any other tissue of pure protein, suggests that the cystine may have a specific function in this tissue. Lightbody and Lewis,[9] Klauder [10] and others have discussed the relation of the protein and sulphur content of the diet to the growth of hair in both animals and man. In general, however, Lewis, who has thoroughly studied the question, holds that experiments which indicate a special relation of cystine to the growth of epidermal tissues rich in sulphur (hair and wool) are interesting but that further work under carefully controlled conditions is necessary before the specific rôle of cystine in the growth of hair can be accepted without qualification.

Cohn [11] stated that most of the known proteins are poor in tryptophan and cystine; nevertheless their necessity for growth in the young and for maintenance of nitrogen equilibrium in the adult animal is fully attested. As Smith states, "in view of the poverty in cystine which characterizes proteins generally, it is of interest to note its occurrence in the foods that Goldberger and his associates advocated as preventive of pellagra and to note that these foods contain cystine (sulphur) in proportions comparable to the value for the prevention of the disease assigned them by this author."

HEMATOPORPHYRIN

The problem of light sensitivity cannot be discussed without some consideration of the porphyrins. The term "hematoporphyrin" is somewhat loosely applied to the iron free pigments that are obtained from hemoglobin, hemochromogen, hematin or hemin by the action of strong acids. As Pryde [12] points out, the presence of a porphyrin is one feature that is common to the hemoglobins, the chlorophylls and other similar substances.

Hematoporphyrin has long been known as possessing a very powerful light sensitizing action. When injected into either man [13] or experimental animals, this porphyrin causes them to become extraordinarily sensitive to the deleterious effects of ultraviolet irradiation and in other ways increases the response of many tissues to stimuli by ultraviolet rays.

It would simplify the problem of light sensitivity a great deal if it could be shown that hematoporphyrin or one of the other porphyrins was the underlying cause of light sensitivity. When the evidence is looked at critically, however, one can only say that the rôle of the porphyrins in photosensitivity is still unsettled. In hydroa vacciniforme, for example, hematoporphyrin has been demonstrated in only about 25 per cent of the cases,[14] and, further, there are many cases in which hematoporphyrin is present in the urine but in which no light sensitivity exists. In none of our own cases of light sensitivity that were tested have we been able to detect hematoporphyrin. Templeton and Lunsford [15] were able to produce porphyrinuria in eleven patients not sensitive to light, merely by ultraviolet irradiation, and found that porphyrinuria also occasionally occurred in patients showing a widespread dermal irritation from dermatoses not related to light. They came to the conclusion that porphyria was probably a result rather than a cause of dermal sensitization.

The whole question of the porphyrins and light sensitivity needs further research. The older observations regarding hematoporphyrinuria need to be reviewed and revised through the light of modern research on these complex chemicals. Thus it must be pointed out that hematoporphyrin as known to biochemists, that is in its strict sense, is never found in man. It is an artificial and synthetic product of the laboratory. Uroporphyrin, however, is present in large amounts in the urine of photosensitive patients and is considerably more active in producing photosensitivity than coproporphyrin, which is found in large quantities in the urine of patients with acute hematoporphyria. Patients with acute or idiopathic hematoporphyria and patients with toxic hematoporphyria are rarely light sensitive.[16]

More reports are needed like those of Taussig,[17] who demonstrated the presence of uroporphyrin in the port wine colored urine of one of his patients with hydroa estivale. In other words there is need in future for cases of light sensitivity, that the exact porphyrin present may be determined.

LUPUS ERYTHEMATOSUS

The irritative effect of sunlight on lupus erythematosus has long been known. In fact, sunlight not only aggravates this condition once it has appeared but in many instances seems to be the provoking or precipitating cause. In many of the reported cases, lupus erythematosus has followed a severe sunburn and in other cases the disease has been changed from that of a chronic discoid type into one with a widespread dissemination of the lesions.[18]

The question of a tuberculous background for this disease is still open for discussion. The only real progress, however, that has been made in recent years in the treatment of lupus erythematosus—namely, the use of gold compounds—was based on a tuberculous etiology. The observations of Gross and Volk [19] indicated that following an injection of a filtrate of dead tubercle bacilli there was a decided sensitizing effect to sunlight. This may perhaps explain both the light sensitivity in lupus erythematosus and the untoward results obtained by treatment with tuberculin. In addition, Randak [20] has demonstrated in a case of disseminated lupus erythematosus that even the uninvolved portions of the skin were oversensitive to light.

It has been our impression that gold compounds, while a distinct advance in the treatment of this condition, are not a cure-all. We wish particularly to stress the importance of small doses of gold and sodium thiosulphate and feel that the therapeutic results

9. Lightbody, H. D., and Lewis, H. B.: The Relation of the Protein and Cystine Content of the Diet to the Growth of Hair in the White Rat, J. Biol. Chem. **82:** 485 (May) 1929.

10. Brown, Herman, and Klauder, J. V.: Sulphur Content of Hair and of Nails in Abnormal States: Therapeutic Value of Hydrolyzed Wool: I. Hair, Arch. Dermat. & Syph. **27:** 584 (April) 1933.

11. Cohn, E. J.: The Physical Chemistry of the Proteins, Physiol. Rev. **5:** 349 (July) 1925.

12. Pryde, John: Recent Advances in Biochemistry, Philadelphia, P. Blakiston's Son & Co., 1931, p. 347.

13. Meyer-Betz, Friedrich: Untersuchungen über die biologische (photodynamische) Wirkung des Hämatoporphyrins und anderer Derivate des Blut und Gallenfarbstoffs, Deutsches Arch. f. klin. Med. **112:** 476-503, 1913. Strauch, C. B.: Photosensitivation, Am. J. Dis. Child. **40:** 800 (Oct.) 1930.

14. Mason, V. R.; Courville, Cyril, and Ziskind, E.: The Porphyrins in Human Disease, Medicine **12:** 355 (Dec.) 1933.

15. Templeton, H. J., and Lunsford, C. J.: Eczema Solare and Porphyria, Arch. Dermat. & Syph. **25:** 690 (April) 1932.

16. Hausmann and Haxthausen: Die Lichterkrankungen der Haut, Berlin, Urban & Schwarzenberg, 1929.

17. Taussig, L. R.: Hypersensitivity of the Skin to Light, California & West. Med. **39:** 301 (Nov.) 1933.

18. Bechet, P. E.: Lupus Erythematosus Disseminatus with Extension of the Disease After Exposure to Actinic Light, Arch. Dermat. & Syph. **13:** 701 (May) 1926.

19. Gross and Volk: Arch. f. Dermat. u. Syph. **120:** 301, 1914, cited by Hausmann and Haxthausen.[16]

20. Randak: Zentralbl. f. Haut. u. Geschlectskr. **16:** 382, 1925, cited by Hausmann and Haxthausen.[16]

obtained with smaller dosage will equal or exceed those with larger doses of this drug with less likelihood of toxic reactions. Our initial dose never exceeds 5 mg. of gold and sodium thiosulphate, and we rarely exceed from 30 to 35 mg.

Just how or why bismuth acts in this disease we do not know, but in cases resistant to gold therapy a trial of bismuth therapy is certainly indicated. We use an insoluble preparation, bismuth subsalicylate in 2 grain (0.13 Gm.) doses once a week. Sutherland-Campbell, however, recently presented two cases of chronic resistant lupus erythematosus before the Los Angeles Dermatological Society. Both of these cases had been treated for several years by gold compounds without result. This was followed by a series of bismuth salicylate injections—some twelve to sixteen in number—and these, too, were without effect. Finally an excellent therapeutic result was obtained with the use of iodobismitol. Certainly its employment is indicated in cases resistant to other types of therapy.

In all cases of lupus erythematosus that we have seen, the removal of foci of infection has been stressed.

REPORT OF CASE

We have recently made an interesting observation concerning the effect of diet on lupus erythematosus:

A white woman, aged 35, had had a chronic type of disseminated lupus erythematosus for about thirteen years. She presented an extensive but typical involvement of the face, the V of the neck and chest, with some eruption on the extensor surfaces of the arms. She was first started on gold therapy in September 1932 and received a total of twenty gold injections. Toward the latter part of this course, signs of intolerance began to develop and the treatment was temporarily suspended, one injection of ordinary sodium thiosulphate being given. At this time, March 6, 1933, there was considerable involvement of the forehead and cheeks. She was not seen again until Jan. 27, 1934. At this time her face was entirely free from any lesions. On inquiry the patient stated that the eruption became progressively worse after she disappeared from our observation and was as bad as it had ever been. In June 1933 she started on the diet of a well known food faddist and stated that within one week after starting this diet her face was 95 per cent well and at the end of two weeks she was entirely well, there being no sign of any eruption on her face. The diet which she had used was as follows:

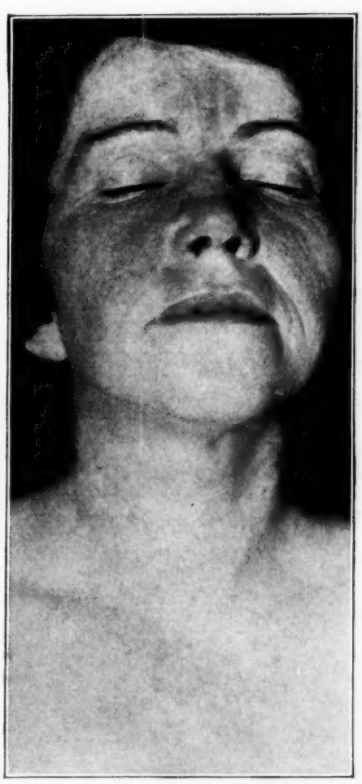

Fig. 1.—Case of chronic disseminated lupus erythematosus. Only temporary improvement followed twenty injections of gold and sodium thiosulphate. Same patient as in figure 2.

7 a. m., one teaspoonful of vegetable salt in a glass of hot water.

8 a. m., one glass of orange juice and at every hour till noon some kind of fruit.

12 noon, a salad of raw vegetables and two cooked vegetables. Every hour in the afternoon a piece of fruit or fruit juice.

6 p. m., a salad of raw vegetables and two cooked vegetables. Prunes or baked apple or fruit.

A vegetable broth, which the patient could drink at any time, was prepared as follows: 3 cups of ground carrots, 3 cups of ground celery, 1 cup of ground spinach and one-half cup of ground parsley. This was ground fresh and put into 2 quarts of luke warm water and placed on a slow flame for twenty-five minutes only. This was allowed to stand for one hour and then was drained through cheesecloth. The bulk was thrown away. To this liquid tomato juice or juices from ground vegetables were added.

Fig. 2.—Same patient as in figure 1. Patient apparently cured after following a modified Gerson diet, consisting essentially of fruits and vegetables and total exclusion of salt, with a vegetable salt substitute.

Since this observation we have tried this diet on about six patients either with lupus erythematosus or with an actinic dermatitis. Several of the patients have been helped, one to the extent of perhaps 75 to 80 per cent and another to an extent of at least 50 per cent, and this within a period of two weeks' time. Two patients, one with a severe actinic dermatitis, were unchanged.

Just what this diet does in these cases we are not prepared to state. There is apparently no rationale in its use. But if we knew the exact cause of lupus erythematosus or actinic dermatitis it is possible that we could study and use those parts of this diet which would be beneficial. Before the use of such an apparently fantastic diet is condemned, one should remember such things as the ketogenic diet in epilepsy, liver diets in pernicious anemia, the Gerson-Herrmannsdorfer-Sauerbruch diet in tuberculosis of the skin, and the fact that dietary changes may be both the cause and used as the cure of pellagra, the skin changes of which certainly belong in the realm of light sensitive dermatoses. In experimental work on arsphenamine sensitivity in rabbits, Sulzberger and Mayer [21] have given reasons to believe that diet may play a leading rôle. Whatever may be the final status of diet in the treatment of lupus erythematosus, whether it acts through changes in mineral metabolism, through vitamins or by changing the intestinal flora, the fact remains that diet may play more of a rôle than can at present be admitted. Incidentally, Urbach [22] in his recent work on skin diseases and nutrition mentions several cases of lupus erythematosus in which a marked improvement or cure took

21. Sulzberger, M. B., and Mayer, R. L.: Sensitizations—Regional, Seasonal, Dietary and Other Influences Accounting for Variations and Fluctuations, Arch. Dermat. & Syph. **24**: 537 (Oct.) 1931.

22. Urbach, E.: Skin Diseases and Nutrition, Schmidts' English Translation, Vienna, Wilhelm Maudrich, 1932, pp. 182-183.

place following the use of the Gerson-Herrmannsdorfer-Sauerbruch diet.

LIGHT SENSITIVITY DUE TO DRUGS

There are a number of drugs or chemicals which, if given internally, possess the property of sensitizing the skin to sunlight. Among these drugs are arsenic, phenobarbital, hematoporphyrin, eosin, acriflavine hydrochloride, methylene blue, rose bengal, erythrosin and chlorophyll zeochin (from corn). Most of these substances named possess the common property of fluorescence, which property seems to bear some connection with the ability to photosensitize.[23]

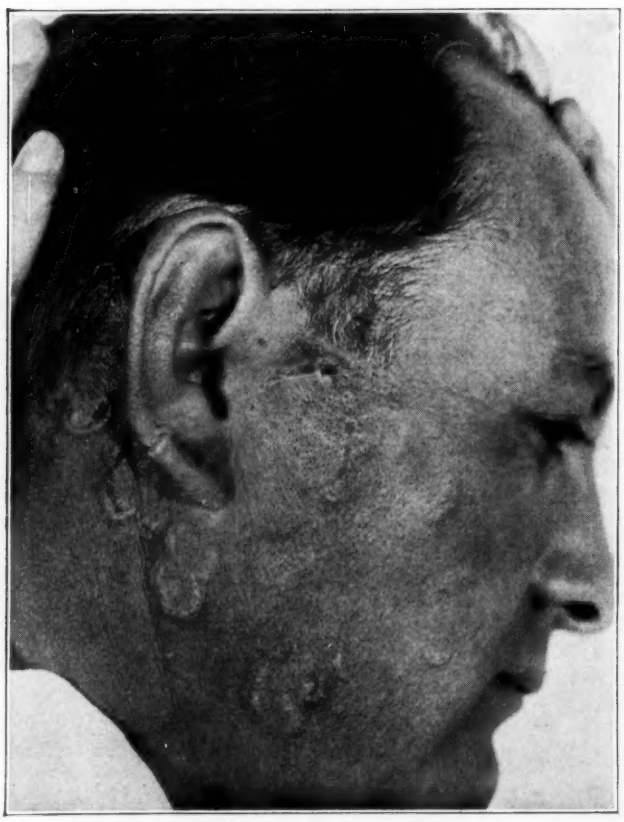

Fig. 3.—Eruption on the face variously diagnosed as an atypical lupus erythematosus or an erythema annulare centrifugum treated for over a year with gold and bismuth without any result. Same patient as in figure 4.

Haxthausen[24] has reported an interesting case in which a psoriatic patient was given acriflavine hydrochloride intravenously for the purpose of making therapeutic use of this sensitizing effect. Previous to the treatment the patient had been very tolerant of sunlight, but following the injection of acriflavine hydrochloride and the use of ultraviolet rays her skin developed a marked intolerance to sunlight. This was so severe as to necessitate her remaining indoors almost constantly. However, even bright sunlight was without effect if the windows were closed. Haxthausen showed that the hypersensitivity of his patient to light was not limited to the exposed areas, for example, the face and hands; by filtration experiments he proved that the sensitivity of the patient was due to the shorter ultraviolet rays; e. g., those less than 4,000 angstroms.

23. Blum, H. F.: Photosensitization, Ann. Int. Med. **6**: 877 (Jan.) 1933.

24. Haxthausen, H.: Persistent Hypersensitivity to Light After Intravenous Injections of Trypaflavine, Brit. J. Dermat. **45**: 16 (Jan.) 1933.

One must not forget that light sensitivity may be produced by the external application to the skin of drugs or chemicals. The photosensitizing action of crude coal tar is well known, which, by the way, fluoresces beautifully under a Wood's filter. The cases of Berlocq dermatitis belong to the same category.

Whether it will be possible to use the property of light sensitization which certain drugs possess is problematic. Macht and Anderson[25] used eosin as such a sensitizer in the treatment of pernicious anemia. They felt that its action was such as to increase the detoxifying efficiency of the ultraviolet rays.

VITILIGO

Sunlight is certainly a factor in the production of many cases of vitiligo. The frequency of its occurrence after sunburn or other exposure to the elements and the greater involvement of exposed areas point to sunlight as an etiologic factor. The normal reaction of ultraviolet irradiation on sound skin is accompanied by the development of pigmentation or tan. The pigments so formed are certainly the melanins, and possibly they are melanins which contain sulphur, although natural melanin, which is formed from the amino acid tyrosine by the action of the enzyme tyrosinase in the presence of oxygen, does not contain sulphur. It is possible, however, as Pryde points out, that true sulphur-containing melanins of natural origin may exist. But nothing is known of their possible mode of formation. Lewis,[3] however, states that the sulphur content of the various melanins is well known, and he cites Brahm,[30] who

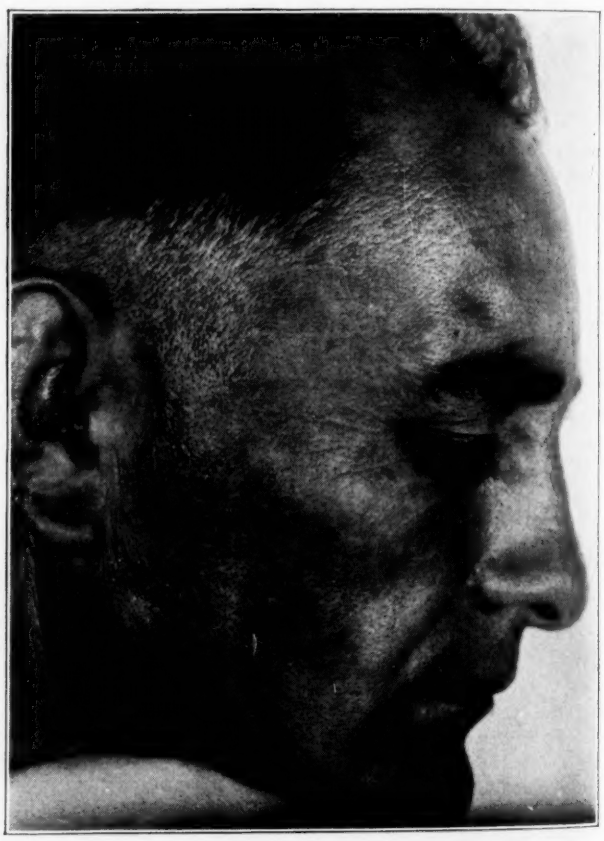

Fig. 4.—Same patient as in figure 3. Result of one month's dietary treatment on a salt free fruit and vegetable diet.

25. Macht, D. I., and Anderson, W. T.: Clinical and Experimental Studies on Phototherapy in Pernicious Anemia, J. Pharmacol. & Exper. Therap. **34**: 365-389 (Dec.) 1928.

30. Brahm: Arch. f. path. Anat. **227**: 137, 1920, cited by Lewis.[3]

found 3.42 per cent of sugar in melanin from a tumor. Brahm suggested that the pigment might be a phenyl derivative of cysteine, (3,4,dihydroxyphenylcysteine).

One of our cases of actinic dermatitis occurred on the exposed areas of a Japanese man engaged in outdoor work. He had suffered from a vitiligo for some twenty years, and it had gradually involved a great deal of the body surface. Incidentally his hair had started

Fig. 5.—Same patient as in figure 6. Acute disseminated lupus erythematosus showing involvement of the exposed areas. Such an eruption often follows a severe sunburn in an apparently normal individual. However, exposure to sunlight may cause dissemination of the disease in a patient with chronic discoid lupus erythematosus.

to turn gray when he was 20 years old—certainly an uncommon occurrence in his race. About four years before he had taken up outside work and since then had been troubled with a continuous and severe eczematous process involving particularly the face and the backs of the hands. His improvement after four doses of a bismuth compounds was quite remarkable, and he also stated that he felt a great deal better physically.

What rôle arsenic may play in the production of vitiligo as advocated recently by Cannon and Karelitz[31] and whether sodium thiosulphate acts in this disorder by favoring the elimination of arsenic or by furnishing sulphur to the body is a debatable question. We only know that in vitiligo a negative dopa reaction occurs, which means the absence of dopa-oxydase or the pigment-forming ferment. Whether arsenic interferes with the formation or action of this ferment is at present unknown. It is even possible, as Cannon suggests, that it may act by stimulating the process of pigment formation to a point of exhaustion.

31. Cannon, A. B., and Karelitz, Marie B.: Vitiligo from Arsphenamine Dermatitis and from Arsenic of Unknown Origin: Arsenic Findings in Blood, Urine and Skin, Arch. Dermat. & Syph. **28**: 642 (Nov.) 1933.

ACTINIC CHEILITIS

It seems worthy of note that practically all cases of actinic cheilitis that we have observed have been in persons of the dark skinned races, notably Mexicans and Japanese. Treatment with gold and sodium thiosulphate and with bismuth compounds has been of no avail. We have not determined the presence of hematoporphyrin in this group of light sensitive cases. It seems more probable that a local tissue hypersensitivity exists, as in one case the condition was markedly ameliorated by destruction of the mucous membranes by the electrodesiccating current. It is worth while to note that in at least three instances we have seen patients with an actinic cheilitis who returned several years later with prickle cell epitheliomas of the lip.

ACTINIC DERMATITIS AND HYDROA ESTIVALE

Little has been added to the knowledge of hydroa estivale since Senear and Fink's[32] review of the subject over ten years ago. There has, however, been a considerable advance made in the chemistry of the porphyrins, which was mentioned earlier in the paper. We have seen a considerable number of cases that might be classed either as actinic dermatitis or hydroa estivale. We have attempted in these cases to demonstrate the presence of photodynamic substances in the urine and

Fig. 6.—Same patient as in figure 5. Apparent cure of acute disseminated lupus erythematosus following the removal of foci of infection (tonsils), protection from overexposure to sunlight, and desensitizing injections of autogenous vaccine. The vaccine was made of organisms grown from the removed foci (teeth and tonsils).

in so doing have utilized the method recently proposed by Perutz and Lustig.[33] For this purpose two strips of sensitive photographic paper, which are of the same

32. Senear, E., and Fink, H. W.: Hydroa Vacciniforme, seu Aestivale, Arch. Dermat. & Syph. **7**: 145 (Feb.) 1923.

33. Perutz, A., and Lustig, B.: Simple Method for Demonstration of Photodynamic Substances in Urine, Wien. klin. Wchnschr. **46**: 1579 (Dec. 29) 1933; abstr. J. A. M. A. **102**: 733 (March 3) 1934.

size, are used. One strip is half immersed in the urine to be examined and the other into a normal control urine, which has the same color and specific gravity as the urine to be tested. After one minute both strips are removed and exposed to either actual sunlight or ultraviolet radiation. As soon as the nonimmersed portion of the paper has turned brown the light exposure is stopped and the colors of the papers are compared. They found that urine from photosensitive patients always produced a darker coloration. Our results unfortunately were not confirmatory of their observations, as we found the light reaction suggestive in only one case.

We have also attempted, in all cases in which light seemed to play a rôle, to demonstrate the presence of fluorescent substances in the urine of such individuals by means of examining the urine under a Wood's filter.

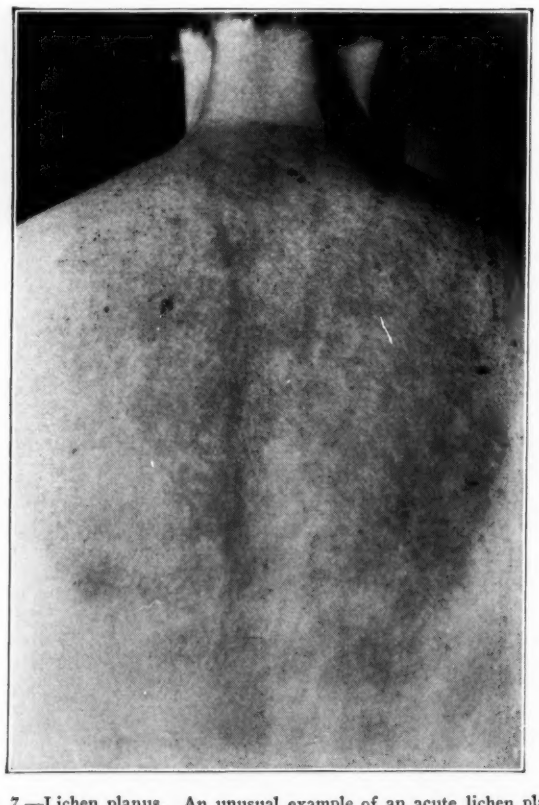

Fig. 7.—Lichen planus. An unusual example of an acute lichen planus precipitated by exposure to the sun. Areas covered by the bathing suit were free of eruption at first; lesions were present on the buccal mucosa.

This procedure was suggested by the work of Jausion and his collaborators,[34] who reported a case of solar eczema in a man, aged 51. They were not able to demonstrate hematoporphyrin in his urine but stated that the patient's urine was more fluorescent under a Wood's filter than the urine of three normal individuals. In such an examination of the urine from at least a dozen light-sensitive individuals we were not able to confirm this finding.

Jausion also has made an interesting suggestion regarding the use of auto-urine therapy in such cases. He injected intramuscularly a small amount of freshly passed urine to which had been added an antiseptic such as phenol or ether. This was done on the basis that the urine contained an antigenic substance which acted to sensitize the patient to light, and the auto-urine injections were given to decrease or abolish this sensitivity. We have not been able as yet to try this procedure, although Jausion has reported excellent results in several cases.

Uhrbach [22] has suggested the use of a liver diet in cases of actinic dermatitis and cites several instances in which good results were obtained in such cases, the purpose of the diet being to protect liver function.

PELLAGRA

In the production of the skin lesions of pellagra, light certainly plays a very important rôle. This has been recognized almost as long as the disease itself and was beautifully shown by the experiments of Ormsby, who demonstrated conclusively that if patients in the early stage wore fenestrated gloves, the dermatitis appeared only in the areas of skin directly beneath the windows cut in the gloves. That light itself, however, is not the sole cause of these lesions is evident from the fact that involvement of unexposed areas, particularly the perineum and genitals, occurs. Smith, however, has explained involvement of these normally pigmented areas on a phylogenic basis.

It is interesting in this connection to mention the disease of fagopyrism,[35] which occurs only in white or lightly pigmented sheep, hogs or cattle. Its cause has been shown to be a chemical compound, flurophile, which is present in the buckwheat eaten by these animals. The disease presents erythema, edema, vesiculation and at times necrosis. But this condition manifests itself only after such animals are brought out into the sunlight in the spring. In spotted animals the condition occurs only in the nonpigmented regions of the skin. Thus it is seen that two factors are necessary for its production: (1) exposure to sunlight (external) and (2) eating of buckwheat (internal).

Since sunlight must be a factor in the production of pellagra, the idea that disturbed sulphur metabolism also plays a rôle is probable. It is only necessary to recall what was mentioned before; namely, the protective action of cystine against ultraviolet radiation.

Hematoporphyrin is not present in the blood serum of pellagrous patients,[36] nor has any one ever shown the actual presence of a photosensitizing substance in pellagrous patients. Jobling and Arnold,[37] however, recorded experiments tending to show that pellagra might be the result of the absorption from the intestinal tract of photodynamic substances produced by certain fungi when the diet consists largely of carbohydrates. Modern biochemical research, however, apparently places the light sensitivity of pellagra as being due not to the presence of some photosensitizing chemical but to the absence or disturbed metabolism of some light protecting mechanism.

The fact that yeast is curative in pellagra may take on a new significance when it is recalled that Koch and Sugata [38] showed that cystine actually stimulated the growth of vitamin B containing yeast.

The common occurrence of either a hypo-acidity or an achlorhydria (from 80 to 90 per cent) with an absence of pepsin has long been noted in the pellagrous

34. Jausion, H.; Carrot, E., and Gibert, A.: Un cas d'eczéma solaire spontané: Sa brusque généralisation après application de pommade: Su guérison par l'autoouro-thérapie, Bull. Soc. franç. de dermat. et syph. **38:** 9 (Jan.) 1931.

35. Gans, Oscar: Proc. Staff Meet., Mayo Clin. **2:** 198 (Aug. 31) 1927. Smith, H. L.: Buckwheat Poisoning, Arch. Int. Med. **3:** 350 (May) 1909.

36. Scott, L. C.; Turner, R. H., and Mayerson, H. S.: Spectrographic Examination of Pellagrin's Sera, Proc. Soc. Exper. Biol. & Med. **27:** 27 (Oct.) 1929.

37. Jobling, J. W., and Arnold, Lloyd: Observations and Reflections on the Etiology of Pellagra, J. A. M. A. **80:** 365 (Feb. 10) 1923.

38. Koch, F. C., and Sugata, H.: Sulphur Metabolism in Yeast, Proc. Soc. Exper. Biol. & Med. **23:** 764 (May) 1926.

patient. Their occurrence, however, assumes more importance when the biochemist explains that pepsin is required to produce the change in the protein molecule whereby a positive nitroprusside reaction occurs. This reaction occurs only in the presence of the SH or sulphydryl group. All in all, as Smith says, "the evidence is suggestive that a lack of cystine may have a specific relation to the etiology of pellagra."

Recent clinical work, notably that of Sabry,[39] gives additional evidence of disturbed sulphur metabolism in pellagra. He found that injections of sodium thiosulphate caused a checking of the skin lesions in early cases of pellagra and a prompt disappearance of the dermal lesions in the late or advanced cases. Other symptoms too were cleared up. Sabry felt that the symptoms of pellagra were due to a poison belonging to the chemical group of dioxyphenylalanine, which is of course closely related to tyrosine, one of the normally occurring amino acids of the body. He felt that this pellagra toxin, the "dopa" of the late lamented Bruno Bloch, came from beans. Perhaps dear old grandmother was not so far wrong on insisting "that we take our regular spring dose of sulphur and molasses."

There is yet another angle, however, to the question and that is the finding of Boggs and Padget,[40] Ramsdell and Magness [41] and others that liver and liver extract are curative in pellagra. This curative action of liver preparations is probably related to their high content of vitamin B complex. What relationship liver extract or desiccated hog's stomach, which is also curative in pellagra, bears to sulphur and to cystine must await the researches of the biochemist.

Among the miscellaneous conditions in which we felt that sunlight was a factor in causation were two cases of lichen planus (fig. 7) and a case of multiple streptococcic furuncles which appeared rather rapidly after exposure to the sun and were sharply limited to the sunburned area.

SUMMARY

Evidence has been presented to show that disturbed sulphur metabolism plays a rôle in the production of light sensitivity and further that the exact status of the porphyrins in light sensitivity is as yet undetermined. The high incidence of lupus erythematosus following severe sunburn is recognized and certain cases will respond to dietary measures when all other known remedies have failed. Certain drugs, foods such as buckwheat, focal infections or physical allergy may at times be light sensitizing agents. Whether disturbed sulphur metabolism bears any relationship to vitiligo is yet to be discovered. What part faulty liver metabolism plays in the causation of actinic dermatoses and of pellagra is not known. It appears that liver therapy is of definite value in both conditions.

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39. Sabry, Ibrahim: On the Chemical Nature of the "Pellagra Toxin" and the Discovery of the Sodium Thiosulphate Treatment of Pellagra, J. Trop. Med. & Hyg. **34:** 303 (Sept. 15) 1931, **35:** 164 (June 1) 1932; Note on Pellagra, ibid. **34:** 391 (Dec. 1) 1931.

40. Boggs, T. R., and Padget, Paul: Pellagra; Analysis of 102 Cases, Bull. Johns Hopkins Hosp. **50:** 21-32 (Jan.) 1932.

41. Ramsdell, R. L., and Magness, W. H.: Parenteral Liver Therapy in the Treatment of Pellagra, Am. J. M. Sc. **185:** 568 (April) 1933.

Sources of Vitamin A.—The chief sources of vitamin A are the livers of certain fish and mammals, dairy produce from well fed animals, eggs and animal fats. Carotene is found in yellow root vegetables, green leaves and many colored fruits and seeds. Vitamin A concentrates are made chiefly from the liver oils of fish and mammals, the liver oil of the halibut being one of the richest sources known.—Colwell, S. J.: Vitamins in Clinical Medicine, *Practitioner* **132:** 15 (Jan.) 1934.

RAGWEED DERMATITIS

A REPORT BASED ON EIGHTEEN CASES

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Sensitivity to the ragweeds (Ambrosiaceae) is generally regarded in terms of the well known hay fever and asthma, which occur so commonly in the United States during the season of pollination in the late summer and autumn months. Occasional cases have been reported, however, of a recurring, eczematous eruption in this same season, in the form of dermatitis venenata affecting chiefly the exposed surfaces of the body, due to an acquired sensitivity of the epidermal cells to the irritating oil of the plant as distinguished from the manifestations of allergic reaction to ragweed protein.

In this agricultural belt of the Midwest, it has been our experience to encounter rather frequently this form of dermatitis, related to season and environment, particularly among farmers and others whose residence, occupation or other contacts bring them extensively into rural districts where ragweed is abundant. A growing interest in problems of sensitivity and a more generous application of the patch method of diagnosis enabled us, during the season of 1933, to identify and study eighteen cases of dermatitis due to ragweed; the cases form the basis of this report.

LITERATURE

The first systematic reports of dermatitis caused by ragweed were those of Hannah [1] in 1918 and of Sutton [2] in 1919. Others [3] have commented on the frequency of a similar summer eruption associated with contact to weeds and dust in general and ragweed in particular.

The value of the patch method of testing these eczematous eruptions was brought out by Sulzberger and Wise,[4] who in 1930 reported the case of a man, aged 40; in his case tests by the usual scratch technic gave negative results, but after application of the pollen to the skin for twenty-four hours under a patch there was a positive eczematous eruption.

Milford,[5] and Brown, Milford and Coca [6] subjected plants of ragweed to extraction in Soxhlet's apparatus by means of petroleum ether and anhydrous ethyl alcohol and found that the oily fraction so removed

From the Section on Dermatology and Syphilology, the Mayo Clinic.
Read before the Section on Dermatology and Syphilology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

1. Hannah, Louis: Ragweed Dermatitis: A New Treatment, with Preliminary Report of a Case, J. A. M. A. **72:** 853-854 (March 22) 1919.

2. Sutton, R. L.: Ragweed Dermatitis, J. A. M. A. **73:** 1433-1435 (Nov. 8) 1919.

3. Bengtsson, Otelia: Ragweed Dermatitis, J. Allergy **1:** 457 (May) 1930. Gay, L. N., and Ketron, L. W.: A Case of Ragweed Dermatitis Recurring Over a Period of Thirteen Years, ibid. **3:** 478-484 (July) 1932. Klauder, J. V.: Clinical Aspects of Allergy in Dermatology, Arch. Dermat. & Syph. **19:** 198-217 (Feb.) 1929. Ramirez, M. A., and Eller, J. J.: The "Patch" Test in "Contact Dermatitis" (Dermatitis Venenata), J. Allergy **1:** 489-495 (Sept.) 1930; Intradermal, Scratch, Indirect and Contact Tests in Dermatology, J. A. M. A. **95:** 1080-1083 (Oct. 11) 1930. Stroud, C. M.: Personal communication to the authors. Sutton, R. L., and Sutton, R. L. Jr.: An Introduction to Dermatology, ed. 2, St. Louis, C. V. Mosby Company, 1933, p. 147.

4. Sulzberger, M. B., and Wise, Fred: Ragweed Dermatitis, with Sensitization and Desensitization Phenomena, J. A. M. A. **94:** 93-95 (Jan. 11) 1930.

5. Milford, E. L.: Studies in Allergy: I. The Specific Activity of Pollen Oil, J. Allergy **1:** 331-333 (May) 1930.

6. Brown, Aaron; Milford, E. L., and Coca, A. F.: Studies in Contact Dermatitis: I. The Nature and Etiology of Pollen Dermatitis., J. Allergy **2:** 301-309 (July) 1931.

was capable of provoking a positive patch reaction in a case of ragweed dermatitis and was to be distinguished from the atopic excitant or protein fraction that remained in the plant. On the basis of these observations it was recommended that measures of desensitization toward contact dermatitis to ragweed be carried out by means of the oily fraction of the plant. Pascher and Sulzberger [7] mentioned a case in which treatment was carried out by this method; the patient was given intracutaneous injections of diluted oil of ragweed, which provoked a flare up at sites where positive patch reactions had been obtained five months previously.

There are few reports of sensitivity to burweed marsh elder [8] (Iva xanthifolia), although the plant is a species of ragweed, is widely distributed in the middle

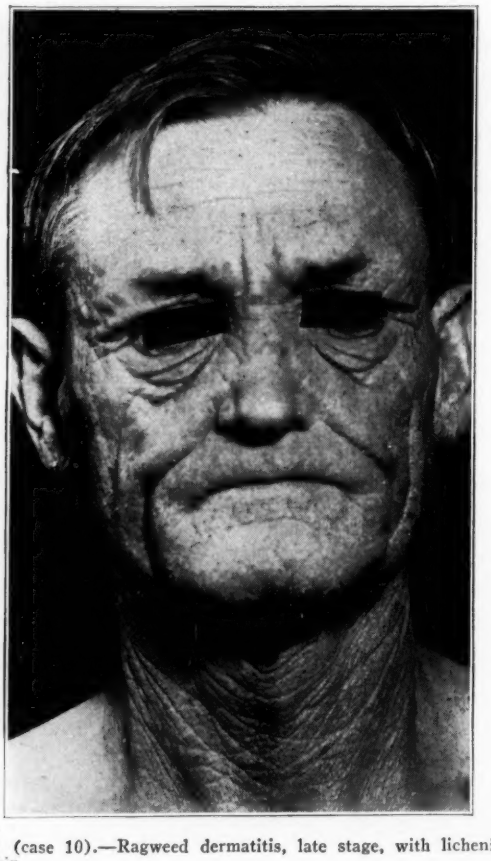

Fig. 1 (case 10).—Ragweed dermatitis, late stage, with lichenification of the skin.

Western and Southern states and, according to Durham,[9] is a likely source of irritation.

CLINICAL COURSE AND SYMPTOMS

The clinical course of dermatitis due to sensitivity to weeds of this type is almost sufficiently clear cut to be pathognomonic. One of the most striking features is the tendency to seasonal recurrence each year. The reaction of the sensitized person depends in each case on the degree of sensitivity and the amount of exposure to the irritant. In the northern states of the Middle West there is sufficient dust in the wind in early summer to cause symptoms of pruritus among persons who are particularly responsive; however, if most of those have had several attacks of dermatitis, the onset can usually be dated to a definite week in July or August, which in itself is an important clue to the nature of the irritating agent. Symptoms are well under way by August, reach their maximum in September, and subside gradually within a few weeks after the first frost, which agrees fairly well with the season of pollination of the ragweeds. Periodic flare ups may occur after intimate contact with the plants themselves, after hunting trips, after weeding in the garden or fields, or after handling hay or grain that has become contaminated with the irritant. Five of our eighteen cases will be abstracted here:

ABSTRACT OF CASES

CASE 1.—A man, aged 49, a resident of northern Minnesota, an iron ore miner, farmed a small plot of ground at the edge of town. Each year, from 1928 to 1933, dermatitis of the exposed surfaces of the face, neck and forearms had developed, which had begun regularly in July and had subsided some time in October. The symptoms had been aggravated on windy days during this period, and in particular after he had worked on the farm plot.

CASE 4.—A man, aged 74, a farmer and dealer in farm machinery in a small town in Michigan, first had noted dermatitis of the face, neck and arms in July 1930, which later had spread to the trunk and legs and had persisted almost continuously until he came to the clinic in July 1933. During January 1932 the skin had become clear while he was confined to bed with influenza; on another occasion the condition had cleared after a visit to Ohio.

CASE 10.—A man, aged 56, a railroad section hand in Missouri, reported the occurrence of attacks of dermatitis during the autumn of 1932 and of 1933. Although the symptoms had improved in the interval, he had nevertheless been subjected to episodes of pruritus after days of work along the road bed. There had been a brief attack of dermatitis in the autumn of 1926. During the summer of 1933 symptoms were unusually severe, and the dermatitis had extended from the face and hands to involve the entire surface of the body, with considerable lichenification (fig. 1).

CASE 14.—A man, aged 28, a photographer in a small city in Minnesota, had dermatitis of the exposed surfaces of the face, about the eyes, for the first time in July 1933. The condition had persisted, with periodic flare ups and remissions, until October (fig. 2). In the spring of the same year he had taken up his residence in the outlying suburbs, where there was a luxuriant growth of ragweed in the adjacent fields. On one occasion, after symptoms had appeared, there had been a severe exacerbation, with edema of the eyelids, and dermatitis with intense pruritus of the face and neck, which had occurred within twelve hours of a long drive through the country. Shortly before, he had coated his face with a bland ointment, which apparently served to catch the irritating pollen dust in a most concentrated form. That the ointment itself was not the irritant was proved by subsequent tests. There was a definite familial strain of allergy in the form of hay fever and urticaria, and the patient himself had had hay fever caused by ragweed annually since 1929. He had received injections of ragweed protein for purposes of desensitization during 1930, 1931 and 1932, with benefit as regards the hay fever.

CASE 18.—A woman, aged 65, residing in a large city in Michigan, first seen in the autumn of 1933, during each autumn from 1914 to 1923 and again from 1931 to 1933 had suffered from dermatitis of the exposed surfaces, which had begun during the latter part of July and had lasted until October or November. Patch tests were positive to the ragweeds and to pyrethrum. Of interest was the relationship of the attacks to change of residence. During the first period, 1914 to 1923, she had lived adjacent to a baseball park that was overrun with weeds. She then had moved to a larger city thirty miles away and had been free from trouble until 1931, when she had moved from the settled districts of the city to a home in the suburbs, where there were many weeds nearby.

7. Pascher, Frances, and Sulzberger, M. B.: Ragweed Dermatitis: Report of Two Cases, Arch. Dermat. & Syph. **28**: 223-227 (Aug.) 1933.

8. Cunningham, T. D., in discussion on Gay and Ketron,[3] J. Allergy **3**: 525 (July) 1932. Huber, H. L., and Harsh, G. F.: A Summer Dermatitis Caused by a Common Weed, ibid. **3**: 578-582 (Sept.) 1932.

9. Durham, O. C.: Personal communication to the authors.

Most farmers are exposed to the dust of ragweed the year round, through contact with clothes on which the dust has settled, or in the handling of hay or grain in the barns. If the involvement at first has been strictly seasonal, the condition may lapse irregularly through the winter months. It is probable also that in the more

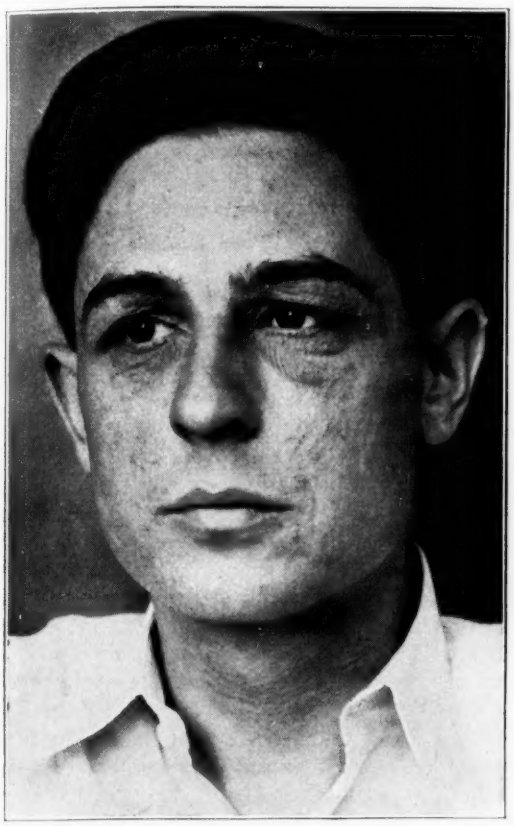

Fig. 2 (case 14).—Ragweed dermatitis, early stage. The involvement of the eyelids is especially noteworthy.

extensive and resistant cases the reactivity of the skin, at first limited to the ragweeds, may become extended over a wider range of irritants, including pyrethrum,[10] turpentine and other vegetable oils.

The earliest signs of dermatitis of this type are redness and edema of the tender skin of the eyelids and neck, with considerable pruritus. The exposed surfaces are chiefly affected, the face, the neck above the collar line, the hands, forearms and ankles. In most instances the dermatitis persists in the subacute stage, with erythema and superficial desquamation, and a minimum of vesiculation. The irritant may be spread to other parts of the body by the hands or clothing, or by the injudicious application of greases, during the early stage of contact. With continued exposure, the eczematous manifestations become more chronic, with lichenification and fissuring. In some cases only the eyelids are involved; in others, the eruption may be universal.

Evidently, sensitivity to ragweed is acquired only after long contact with the irritant, which is shown by the fact that of the cases reported elsewhere, as well as of those in this series, all patients were adults. The youngest patient was 28 years of age, the oldest 74. The average age of those in this series at the time of the onset of symptoms was 42 years, and in the average of the group there was a history of recurrent attacks for almost six years (fig. 3).

The condition would naturally be expected to appear among persons who have extensive rural contacts, but it is not limited to farmers. However, there was only one woman in the 1933 seasonal group of eighteen cases observed. In none of the cases had the exact nature of the irritant been ascertained previously, although in general it was naturally suspected to be related to the dusts of the environment.

REACTIONS TO PATCH TESTS WITH RAGWEED

Although it has been demonstrated that the irritant in ragweed exists in the oil or oleoresin, which is most abundant in the leaves, there is certainly a sufficient amount of the irritant in the pollen to produce a reaction in the sensitized skin. In most instances of ragweed dermatitis the symptoms coincide with the season of dissemination of the pollen by the wind; they are aggravated by a dust storm and relieved after rain. On two occasions we subjected samples of ragweed pollen to a process of extractio with alcohol and ether in a Soxhlet apparatus for more than a week without being able to wash out all the irritant. When ripe, unwashed pollen is applied to the skin, a positive vesicular reaction is obtained in cases of the sort considered

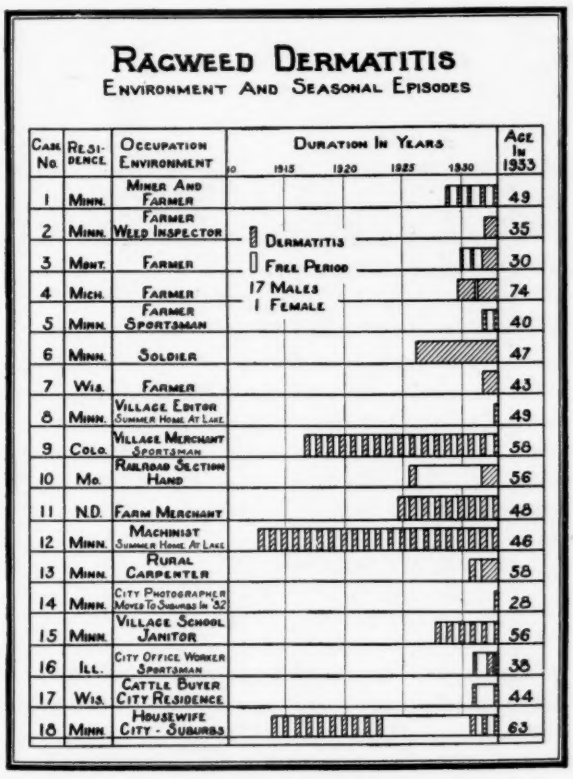
RAGWEED DERMATITIS
ENVIRONMENT AND SEASONAL EPISODES
CASE NO.
RESIDENCE
OCCUPATION ENVIRONMENT
DURATION IN YEARS
1915
1920
1925
1930
AGE IN 1933
1 MINN. MINER AND FARMER 49
2 MINN. FARMER WEED INSPECTOR 35
3 MONT. FARMER 30
4 MICH. FARMER 74
5 MINN. FARMER SPORTSMAN 40
6 MINN. SOLDIER 47
7 WIS. FARMER 43
8 MINN. VILLAGE EDITOR SUMMER HOME AT LAKE 49
9 COLO. VILLAGE MERCHANT SPORTSMAN 58
10 MO. RAILROAD SECTION HAND 56
11 N.D. FARM MERCHANT 48
12 MINN. MACHINIST SUMMER HOME AT LAKE 46
13 MINN. RURAL CARPENTER 58
14 MINN. CITY PHOTOGRAPHER MOVED TO SUBURBS IN '32 28
15 MINN. VILLAGE SCHOOL JANITOR 56
16 ILL. CITY OFFICE WORKER SPORTSMAN 38
17 WIS. CATTLE BUYER CITY RESIDENCE 44
18 MINN. HOUSEWIFE CITY - SUBURBS 63
DERMATITIS
FREE PERIOD
17 MALES
1 FEMALE

Fig. 3.—Place and season. Reproduction of wall chart.

here, which compares favorably with that provoked by the leaf or stalk of the plant. Pollens in this form are less expensive than the prepared commercial oils and are conveniently available at all seasons for patch testing.

When contact sensitivity of this type is suspected, the patient is tested by the patch method for sensitivity to

10. Feinberg, S. M.: Pyrethrum Sensitization: Its Importance and Relation to Pollen Allergy, J. A. M. A. **102:** 1557-1558 (May 12) 1934. McCord, C. P.; Kilker, C. H., and Minster, Dorothy K.: Pyrethrum Dermatitis: A Record of the Occurrence of Occupational Dermatoses Among Workers in the Pyrethrum Industry, ibid. **77:** 448-449 (Aug. 6) 1921. Ramirez, M. A.: Pyrethrum: Etiologic Factor in Vasomotor Rhinitis and Asthma, J. Allergy **1:** 149-155 (Jan.) 1930.

the more common weeds and cultivated plants in harmony with the environment, as well as to such miscellaneous irritants of unlimited number as may pertain to the problems of the particular case in hand. In the case of the weeds, a small amount of the pollen is placed on a square of cloth that has been slightly moistened with olive oil and applied to a clear site on the skin, fixed with adhesive tape or bland cement for approximately twenty-four to forty-eight hours. A positive reaction is manifested by pruritus and the appearance of varying degrees of eczematoid change at the site in the form of erythema, edema or vesiculation (fig. 4). In very sensitive persons the patch should be removed and the site cleansed with alcohol at the first sign of irritation in order to avoid an uncomfortable reaction and a possible systemic flare up at all the sites of dermatitis, which sometimes occur.

Because of the wide distribution in the United States of the various species of ragweed, our tests on these patients included samples of several common species in each case in order that we might determine evidence of specificity of reaction to the genera as a whole or to

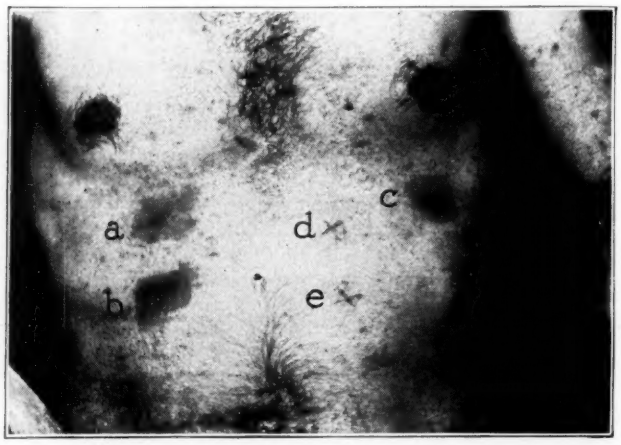

Fig. 4 (case 3).—Patch reactions in a case of ragweed dermatitis: *a*, positive reaction with Western ragweed pollen; *b*, Positive reaction with burweed marsh elder pollen; *c*, positive reaction with short ragweed pollen; *d*, negative reaction with turpentine; *e*, negative reaction with pyrethrum.

any single species or variety. The following specific weeds and miscellaneous irritants were used in sufficient number to indicate the trend and range of sensitivity: short ragweed (Ambrosia elatior), giant ragweed (Ambrosia trifida), western ragweed (Ambrosia psilostachya), burweed marsh elder (Iva xanthifolia), cocklebur (Xanthium canadense), pyrethrum (used extensively as an insecticide), turpentine, potassium arsenite (1 per cent solution), quinine sulphate (1 per cent solution) and corrosive mercuric chloride (0.1 per cent solution). The reactions to the patch test were graded in severity from — to ++++ and are recorded for the eighteen cases in this series in figure 5.

Inspection of figure 5 reveals the fact that almost all the positive reactions occurred within the range of the samples of ragweeds, particularly to tests with burweed and with two of the three varieties of Ambrosia, short and western ragweed. Cocklebur gave a decided reaction in only two instances and giant ragweed in only one case. Except for these two there is definite evidence of species specificity in the list of positive reactions. Our data in regard to other species are incomplete; in future testing it might be well to include other members of the family of Compositae, such as the sage and heleniums,[11] which are also recognized as irritating weeds.

In four cases sensitivity was demonstrated to a single species or variety of ragweed (cases 1, 7, 8 and 16). In the other cases the reactions were polyvalent. The response to applications of samples of pyrethrum and turpentine is of interest (cases 4, 13, 17 and 18). In these cases the symptoms of dermatitis might well be expected to extend beyond the season of ragweeds, provided there was sufficient contact with paint or with insecticides, such as fly sprays or insect powders, which are now in common use and which contain pyrethrum.

The report in figure 5 on the reactions to giant ragweed is not in harmony with our expectations. It is likely that this particular variety is less irritating than the others, for it is not rare by any means and the samples that were used for testing a number of the patients included not only pollen from varied sources but also the leaf of the plant and the extracted oil. Detailed tests were made on one patient (patient 14) and on another patient sensitive to ragweed whose case is not included in this report; multiple samples of ragweeds from varied sources were used to demonstrate that the sensitivity in some cases may be restricted to certain varieties of the same species of ragweed, which will be reported subsequently.

In these cases, definitely positive reactions were not obtained to tests made with solutions of the metallic salts of mercury and arsenic. More data are needed in this regard before it can be said that a specific sensitivity exists in the skin to vegetable oils on the one hand and to metallic salts on the other.

Brown, Milford and Coca stated that, in general, 15 per cent of the average run of persons, whether normal, atopic or those with other forms of contact dermatitis, will give positive reactions to patch tests of oil of ragweed. At present we are attempting to confirm these interesting observations.

RELATION OF RAGWEED DERMATITIS TO ATOPY

Contact dermatitis to oil of ragweed is to be distinguished from the state that exists in hay fever and asthma when there is an urticarial response, on skin tests, to the protein fraction of ragweed. The latter condition reveals a familial strain and the presence of specific atopic reagins in the circulating blood, which can be demonstrated by passive transfer and which has not been satisfactorily demonstrated in contact sensitivity.

Scratch or intracutaneous tests with water-soluble protein allergens of ragweed were made in thirteen cases, and in only two was there a positive urticarial flare (cases 14 and 16). Atopic reagins to ragweed were demonstrated in both these cases; in one there was evidence of hay fever and an allergic familial strain; in the other, tests by the direct method and by passive transfer were likewise positive for ragweed and for orris root, without clinical history or familial record of the usual allergic manifestations, representing an example of incipient or undeveloped atopic capacity. This coincidence has been recorded on three other occasions.[12] One other patient (patient 6) is worthy of

11. Balyeat, R. M.; Rinkel, H. J. and Stemen, T. R.: Contact Dermatitis (Venenata): Distribution and Importance of the Heleniums as a Cause of Contact Dermatitis in the United States, Am. J. M. Sc. **184**: 547-555 (Oct.) 1932.

12. Hannah.[1] Ramirez and Eller.[3] Sulzberger and Wise.[4]

mention in this regard. There was clinical evidence of vasomotor rhinitis and disseminated neurodermite with positive tests to foods by direct and indirect methods, but no reaction to ragweed protein, although there was superimposed dermatitis venenata during the ragweed season, with positive patch reactions, as recorded in figure 3.

In two instances of contact sensitivity to ragweed (cases 10 and 17), tests to ragweed protein were negative by direct application and by passive transfer, which is consistent with contact dermatitis in general. In a few persons who were tested by the scratch method to ragweed pollen, we observed dermatitis at the site of the tests about three or four days later, although there were no urticarial reactions immediately, which we interpreted as contact reaction to the oil in the pollen, which had been insufficiently cleansed from the skin after the tests. From a summary of these data, we are agreed that there is no more than a casual relationship between contact sensitivity and the atopic state.

TREATMENT

Symptomatic measures of treatment of ragweed dermatitis are similar to those recommended for dermatitis venenata in general. During the acute stages, the use of ointments and oily lotions is contraindicated, because they place the irritant in solution and favor its spread to unaffected surfaces. Wet dressings of astringents, such as lead acetate or aluminum subacetate, suitably diluted, are attended by considerable relief of symptoms. Soothing baths and drying lotions are likewise of benefit. During the process of involution there will be improvement under bland ointments, and sometimes fractional doses of roentgen rays may be given for relief of pruritus, but only under expert supervision.

An ideal method of escape is possible for those who are able to make a change of environment, which is admirably illustrated by the experience of one patient in this series (patient 18), who suffered dermatitis only when near weed-infested districts. Obviously, for the most part, such is not practical for the farmers who comprise the greater proportion of those who are sensitive.

In the earlier reported cases of ragweed dermatitis, treatment toward desensitization by means of injections of the protein-containing allergen was recommended with a favorable percentage of protection being conferred thereby. Others were not so fortunate, in particular a patient of Stroud and one in this series (case 14); in the latter case, dermatitis first developed after three years of such desensitization.

Brown, Milford and Coca, after pointing out that the contact irritant of ragweed was an oil, recommended that such specific oil be used by injection for purposes of desensitization. Favorable results have been reported [13] by means of this method after other procedures had failed. Published reports are few, except in cases of sensitivity to Rhus, in which some observers obtained a decided elevation of the level of tolerance to the irritant, although the skin still responded with eczematous reaction to application of the specific irritant by the patch test. There is need for further controlled experiment in this field.

Our experience with the injection of specific oils of ragweed for purposes of desensitization is limited to observations in eight cases in this series (cases 2, 4, 9, 10, 12, 13, 15 and 17), in which from three to six injections were given at intervals of from several days to several weeks during the time the dermatitis was in evidence. Injections consisted of 0.5 cc. of 1 per cent oil of mixed ragweed (short and giant) in sterile almond oil (Lederle) intramuscularly. In one case (case 10), oil of burweed was used. During the course of the treatment there was relief of symptoms in one case for twenty-four hours after each injection of the oil intramuscularly; in two others there was an associated flare up in the sites of dermatitis, and in the previous patch reactions, with increase in pruritus for a day after each injection.[7] Two patients (10 and 17) expressed the opinion that the treatment by injection had served materially to shorten the present seasonal episode and to elevate to some extent the tolerance of the skin to previously forbidden contacts.

Observations of this type are difficult to evaluate, because it is the natural tendency of the hopeful patient to expect improvement, although at the same time he

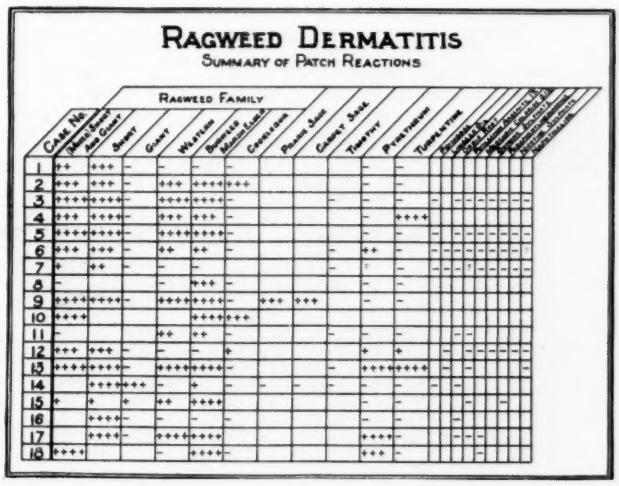

Fig. 5.—Patch reactions. Reproduction of wall chart.

unconsciously exerts a change in his environment by avoiding those contacts the irritating qualities of which have been pointed out to him.

The solution of oils to be used for desensitization should contain the various particular irritants to which the patient has been found sensitive. A comprehensive series of patch tests should be employed preliminary to treatment and at varying intervals afterward, in order to detect, if possible, any change in the degree of response of the reactive skin. The most practical manifestation of benefit from desensitization, however, rests with those who, having had repeated seasonal episodes of dermatitis, are enabled to carry on in the same occupation and environment with comparative freedom.

During the spring of 1934, the patients of this series who have been willing to cooperate have been started on further treatment preseasonally, and their reactions at the time of the expected return of symptoms with the ragweed season will be observed with interest.

COMMENT

Ragweed dermatitis is more common than is generally supposed. In cases of recurrent eruption in the summer, patch tests should include samples of the several ragweeds, as well as pyrethrum and turpentine. Further

13. Pascher and Sulzberger.[7] Stroud.[3]

investigative work is necessary in experimental and clinical fields to determine the exact nature of the irritant, the factors concerned with the development of sensitivity, and the mechanism of desensitization.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. COCA, DR. WHITE, DRS. N. P. ANDERSON AND AYERS, AND DRS. BRUNSTING AND C. R. ANDERSON

DR. MARION B. SULZBERGER, New York: The differentiation between atopic and contact dermatitis seems to be of far more than theoretical importance. Consider the following four points: 1. The difference in the test technic that must be employed. In contact dermatitis, the contact or patch test; in atopic dermatitis, scratch or intracutaneous tests. 2. The difference in the causative agents. In contact dermatitis, simple chemicals such as solution of formaldehyde, mercury and nickel salts, local anesthetics, dyes and plant oils, such as ragweed, ivy, primrose and chrysanthemum oils, and the fungi—I think the eczematogenous fungi of the monilia-trichophyton group must be included in this series of irritants. In atopic dermatitis, on the other hand, the so-called protein antigens, those which are the usual causes of other atopic diseases, are usually the causative factors. 3. The difference in the type of treatment in these two groups. In contact dermatitis, simple antiphlogistic measures, provided contact can be avoided, are usually sufficient. In atopic dermatitis, perhaps because the avoidance of the excitants is more difficult, systemic measures have to be employed, such as sedatives, and more attention in general must be paid to the systemic treatment of the atopic dermatitis from the endocrinologic, the vasomotor and the psychic points of view. Needless to say, local and topical remedies, including x-rays, maintain their importance in the treatment of atopic dermatitis. Elimination diets combined with the removal of suspect inhalant substances and of foci of bacterial and/or mycotic infection should bring relief in many heretofore intractable cases of atopic dermatoses. Unfortunately, this procedure is in most cases practically impossible. I am not quite as pessimistic as Dr. Coca about the possible success of desensitization treatment with protein extracts in these cases, though I admit that the desensitization is certainly much more difficult than either in the plant-oil group or even in the case of dermatomycoses, which in some selected cases certainly are markedly benefited by the combined injection of fungus extracts, as Dr. Coca has stated. 4. The fourth difference is one that cannot be considered proved but must be considered only as a hypothetical possibility as yet. It is recognized that in contact dermatitis the epidermis is the shock tissue and the site of primary reaction. On the other hand, it appears probable that in atopic dermatoses the uppermost vascular layers of the cutis are the shock tissue. In other words, not the ectodermal but the mesodermal part of the skin is the "shock organ," and the epidermis becomes only secondarily affected, owing to repeated subclinical reactions in the upper cutis. This would seem to explain to some degree why atopic dermatitis is associated with vascular sensitivity of other organs, as in hay fever and asthma, and the presence of urticarial skin test reactions and of reagins. It is amazing that one has such marked success with desensitization of a contact dermatitis in the case of the employment of the vegetable oils. All know how well-nigh impossible it has been to desensitize cases of contact dermatitis due to substances other than plant oils. In view of these sharply contrasting results I believe it would be well to attempt desensitization with other substances with a method paralleling as closely as possible that employed in the cases of dermatitis due to plant oils.

DR. JEFFREY C. MICHAEL, Houston, Texas: Dr. N. P. Anderson and Dr. Ayres have done valuable work in correlating and evaluating the knowledge on photosensitization and on photosensitive dermatoses. They have divided their paper into a consideration of the physical and biophysical properties of light and of photosensitization and then into a clinical discussion of the subject. As to the biochemistry and biophysics of light that pertain to cutaneous medicine, probably every one realizes that present knowledge is quite elementary and that it cannot be applied to clinical phenomena with entire satisfaction. The authors especially discussed the question of sulphur metabolism as it relates to light sensitivity and of hematoporphyrin. Of course there are many other substances that have photosensitive properties, among them two important circulating metabolites, sugar and urea. Sugar, I think, is quite an important photosensitizer; at least it has been suggested that the frequency of cataract in diabetes is due to the photosensitive properties of the sugar. I will discuss lupus erythematosus and pellagra together. I have seen cases of lupus erythematosus that have followed severe sunburn. The cases that I have seen are few, and all of them have occurred de novo. I am not so certain, however, that this is true photosensitivity. I do not think that such a precipitation necessarily indicates a true sensitivity. It may indicate a sort of biotropic effect. For example, cases of lichen planus as well as cases of psoriasis in which irradiation is done during the stage of progression of the disease will sometimes present lichen planus or psoriasis in the areas that have been subjected to x-rays, just as in the case of Anderson and Ayres in which lichen planus had been treated with light. This is what probably occurs in these cases of lupus erythematosus and also in pellagra; in other words, they are in a stage of the disease in which some further insult, in this case light, causes a precipitation of the disease at certain exposed points. If it should be conceded that this is true photosensitivity, it would be necessary to show that in these cases the skin is more fluorescent than it formerly had been, and so far as I know such a condition has not been demonstrated. On the other hand, hydroa estivale and urticaria and eczema solare seem to be more specifically light sensitive cases. So far as urticaria is concerned, Wucherpfennig thought it well to divide cases of light sensitive urticarias or light allergic urticarias into two types, urticaria solaris, meaning that they are precipitated by visible light, and those which he calls urticaria photogenica, which are produced by invisible light.

DR. JAMES R. DRIVER, Cleveland: Dr. Coca has actually thrown the challenge to dermatologists to give this subject the importance it deserves. The interest shown here will do much to keep certain phases of allergy in the specialty of dermatology where they belong. Drs. Brunsting and Anderson have called attention to a type of sensitization dermatitis that is doubtless much commoner than has been supposed. The fact that in the series they report there was only one woman affected is most interesting. One would expect the incidence to be higher. Farmers, of course, come in contact with ragweed the year round, but naturally more so in the late summer months. The higher incidence at this time is to be expected. However, I believe that the presence of moisture on the skin, due to perspiration, is the factor that increases the possibility of irritation from the pollen. This is frequently seen in cases of fur dye dermatitis. As long as the fur and skin are dry no irritation results, but if the fur is worn in the rain, in a snowstorm or on a warm day, a dermatitis may occur. Dr. White has given some important facts in regard to some cases of acne. Every dermatologist has had cases that did not respond to the usual roentgen treatment, but in the past the value of diets has been underestimated. Investigation along these lines is indicated in all cases of acne that do not respond to roentgen treatment within a reasonable time. It should be kept in mind, however, that children under 18 years of age with acne do not respond well to roentgen treatment. Failure to recognize this fact has resulted in many instances of too much irradiation and the consequent unfortunate results. The rational use of diets along with roentgen treatment in acne cases should in many instances reduce the amount of irradiation necessary.

DR. ALBERT H. ROWE, Oakland, Calif.: I would emphasize cases of dermatitis that I have studied in California, characterized by negative reactions to pollen oils but by definite reactions to pollens by the scratch or intradermal tests. These cases give a seasonal history. The eruption first appears on the exposed areas of the body, especially the face, hands, arms and legs, but as the season progresses it gradually may involve more and more of the extremities and body. A few patients fail to react to pollens or to pollen oils but respond to treat-

ment with the important pollens in the air at the time of the dermatitis. Those patients who give positive pollen tests require antigens prepared according to their skin reactions. Treatment has to be given over long periods and perennial treatment is of as much value in obtaining permanent results as it is in the problem of hay fever. In California and also in the Middle West, Amaranth, Atriplex, Artemesia and other fall pollens, as well as ragweed pollens, must be recognized according to locality as the causative factors. Dr. Cleveland White's confirmation of the frequent occurrence of the acneform type of dermatitis due to food allergy is timely. Because of the difficulty in obtaining satisfactory skin tests in all food sensitizations, I have recommended "elimination diets" since 1928. These diets must be modified by skin reactions that are obtained, and history of food idiosyncrasies. The chosen diet must be used for one to three weeks in order to eradicate the allergic effects of former foods, and, if relief is not obtained, other elimination diets must be tried before food allergy can be ruled out. My experience indicates that manifestations of food allergy may recur in a few minutes or days after the resumption of a causative food, although such food may frequently be taken for two or three weeks, or even a month or two before established tolerance is overcome, and a return of the specific reaction, whether migraine, asthma or dermatitis, occurs.

DR. C. M. STROUD, St. Louis: I agree with Dr. Sulzberger that allergists should maintain a well balanced dermatologic outlook if they expect to treat patients who suffer with what seems to be an allergic skin disease. It is not always easy to differentiate allergic conditions from conditions that are entirely foreign to allergy; it is likewise not always easy to differentiate contact dermatitis from atopic eczema. The presence of atopic eczema should not deny the existence of a contact dermatitis. I have seen the two occur in the same individuals on several occasions. The presence of other allergic manifestations, such as hay fever, asthma or migraine, does not deny the existence of a contact eczema. For three years I have treated some cases of contact dermatitis with various oils, to which they showed reactions. I have given ragweed oils through three seasons as treatment. I have given pyrethrum oil and have also treated patients with turpentine and almond oil and have secured in most instances very desirable results. I agree with Drs. Brunsting and Anderson that some patients are sensitive to the oil of the short ragweed and not to the oil of the giant ragweed. I have found variations in their reactions on several occasions. Multiple sensitivity is common. Patients who have a contact dermatitis lasting the entire year have been noted to be sensitized to two or more substances acting as the causative factors in different seasons. Thus, a patient who had a ragweed dermatitis in the summer also had a lesion in the winter which appeared to be similar to the one in summer. The winter dermatitis was markedly improved when contact with wool was restricted. It is noted that allergy frequently complicates dermatologic conditions. It is probable that a few patients whom I have seen whom I considered as having an acne complicated by allergy, have in reality the condition that was mentioned by Dr. White. I have seen several patients who had acne who were not benefited by dermatologic procedures until various substances to which they showed positive allergic reactions were removed from their environment or from their foods. A carefully taken history frequently gives important information regarding the causative factor and thereby reduces the number of necessary tests to a minimum.

DR. G. L. WALDBOTT, Detroit: Urticaria is often caused by pollen. This has been clearly brought to me during the past year when at the height of the tree hay fever season a large group of patients came to my office with hives. At the same time, several pediatricians called me up and wanted to know "what was in the air," because they had the same experience. Some of these patients had nasal catarrh, and injections with tree pollen extracts gave them considerable relief within one to two days. In some, the condition cleared up a week or so after the pollen had disappeared from the air. If one remembers that the majority of investigators believe that pollen is the most important single cause in allergy, one will appreciate its rôle in allergic skin diseases. Another point concerns the question of acne. Various types of skin lesions are referred to the allergists. Sometimes the patients come on their own initiative with the desire to be skin tested. I have been in the habit of referring such patients to dermatologists whenever I thought that I was dealing with a nonallergic disease. However, once an acne patient insisted on the tests. She had a negative family history and there was no evidence whatever of allergy. After certain foods to which she gave positive reactions had been eliminated and a few desensitizing injections of inhalants had been given, the patient's acne, which had been present for a long time, disappeared. Since then I have given these cases at least the benefit of an allergic investigation and have found it well worth while. As to the question of food sensitivity, I should like to discourage some of the enthusiasm expressed by some of the previous speakers. I feel that food is an important factor, but its control is not the panacea of treatment of allergic diseases. In my hands, elimination diets have not been very successful. If one considers that any inhaled antigen can be demonstrated by immunologic methods in the blood soon after the inhalation, one will probably pay more attention to pollen and other inhalants and obtain better results. This also explains why dermatologists have had such poor results in desensitizing eczema cases with food extracts, since the food that is employed in the treatment is not the main causative agent. If one determines correctly which of the many causative substances is the main factor, and if one treats the patient with this specific extract in small increasing doses, whether it is food, pollen or epidermal, there will be less pessimism concerning desensitizing eczema cases in the future than there has been in the past.

DR. A. B. LOVEMAN, Louisville, Ky.: I should like to ask Dr. White whether routine gastric analyses were made in his cases. Within the past four months I have had ten or twelve cases similar to those described, which were most resistant to the usual type of therapy, which included x-rays, ultraviolet rays and a low carbohydrate diet. Gastric analyses were made because of the resemblance of this type to acne rosacea. In about 50 per cent of the cases I was unable to demonstrate any free hydrochloric acid, and in the other 50 per cent, although some free hydrochloric acid was present, there was a definite hypo-acidity. They all improved markedly on hydrochloric acid by mouth. Incidentally, all the cases to which I refer were in girls and were the erythematous type, clinically simulating features of both rosacea and iododerma.

DR. LEON UNGER, Chicago: Dr. White quoted a case of mine of a girl of 13 whose acne was incidental to her main complaint, which was one of epileptiform convulsions due to epilepsy. The mother mentioned that eating eggs caused a rash. We took eggs out of the diet, the acne disappeared, and the epileptiform convulsions disappeared and have not recurred in the last seven or eight years. It is well known that certain other foods, such as strawberries, will cause acneform rashes. Many people get pimples instead of getting hives from eating strawberries. I agree with Dr. Rowe that the skin tests in the cases of acne due to allergy should be done. While the skin tests may not be positive, they will be of great help if positive, as it is a short cut to diets. I should like to ask Dr. Coca about the source of his oil fractions; whether they are made from the pollen, stalk or leaves, and a little more detail about the injections of the oil extract. Drs. Brunsting and Anderson's observation that these patients give strongly positive contact tests with the short ragweed and negative contact tests with giant ragweed brings up an interesting point. I have always thought that giant and short ragweed were practically identical, and in hay fever patients one can give an injection of a certain dose of giant ragweed and can shift him over to an equal dose of the short ragweed without any constitutional reactions. It would seem, therefore, that as far as the ordinary allergy as expressed in hay fever and in asthma is concerned there is an identical element in short and giant ragweed but that the two differ greatly in their oily fractions.

DR. JOSEPH MULLER, Worcester, Mass.: Concerning the deductions of Drs. Anderson and Ayres, I want to ask whether they are familiar with the chemical work done by Professor Bloch of Zurich, his pupil Professor Rothman of Heidelberg, now of Budapest, and Dr. Rajka of Budapest, who investigated

other amino acids and obtained important results. I don't see that their paper produces evidence that those conditions which are light sensitive are due entirely to the source mentioned. Rajka also demonstrated some changes in the enzymes of the skin under ultraviolet irradiation. Dr. White apparently differentiates between acnelike dermatoses and true acne. I was working in a similar field and I want to bring out some clinical differences between true acne and the acnelike dermatoses. The general appearance of the skin of these patients is rather a dry one and not the extremely oily one of the true acne vulgaris. The eruption, as Dr. White mentioned, was mostly nodular or papular, and there was much less suppuration than in true acne. The forehead is more often affected than is the case in true acne. I had the same experience with the elimination diets as Dr. Rowe. I had excellent results. I never could get any positive scratch tests in these acnelike cases. In a small number of cases I made hydrochloric acid determinations and in some of the cases which I thought were not acne but an acnelike eruption I got very low hydrochloric acid values. About 30 per cent of them improved on hydrochloric acid alone, without any allergic work being done on them. The rest of them were cleared up by elimination of certain foods from their diet, and in a great number of them I could get a relapse within a week by allowing the patients to eat again the allergenic food.

DR. SAMUEL M. PECK, New York: I disagree with both Dr. Coca and Dr. Sulzberger in their conception of what they call atopic eczema, not in its entirety but in some of its manifestations. Dr. Sulzberger carried the conception of atopic eczema into its clinical phase and has brought into that group what is generally called disseminated neurodermatitis, and furthermore he has differentiated the shock tissue, or the point at which the allergic action takes place, by saying that unlike contact dermatitis it is not mainly in the epidermis but mostly in the upper vascular layers and the papillary body. If one studies a group of children with eczema over a long enough time it is striking that children with typical neurodermitis disseminatus practically all have had an infantile eczema and yet one practically never sees this clinical picture during the first year of life. In other words, a clinical picture that resembles ordinary eczema with vesiculation, scaling and crusting without any special arrangement of predilection (except the cheeks) invariably precedes the typical lichenified neurodermitis picture in the flexors. About 90 per cent of those cases of eczema in which there is a hereditary family history of allergy (the atopic group) will develop into a typical neurodermitis disseminatus after the second year if the skin manifestations last long enough. This observation is important in that such a differentiation would fit in with Dr. Coca's and Dr. Sulzberger's conception of atopic dermatitis in infancy and childhood, meaning by that that in the atopic dermatoses one is dealing with a tendency to manifest a neurodermitis type. On the other hand, only 50 per cent of my neurodermitis cases gave a family history of allergy when the patient was over 2 years of age. My observations have proved to me that in infancy there is no way of clinically differentiating the group that would eventually develop a neurodermitis disseminatus. It is doubtful that in the neurodermitis group or in the atopic group one is dealing with a mechanism and localization of the allergic manifestations that in any way differs from ordinary eczema. Routine testing of children with eczema for almost four years by means of the scratch and patch methods shows that scratch tests are of much less importance than the patch tests; furthermore, this statement applies equally to the neurodermitis group. Contact or environmental substances were much more important than foods in giving positive reactions with patch tests. Foods were important in the infantile cases only. No matter what type of eczema was seen in infancy and childhood, it is common knowledge that these cases invariably cleared up in the hospital. This seems to me an added proof of the importance of the environmental factor as against foods.

DR. HOWARD FOX, New York: I should like to say a few words about the diagnostic value of sensitization tests in skin diseases. In my experience both the scratch and the intradermal tests have been very disappointing, especially in atopic eczema, while on the contrary patch tests, especially in contact eczema, have been extremely valuable. I am speaking not so much of personal experience as that of a group of men who worked for four years in my clinic at the New York University. This group consisted of trained allergists under the leadership of Dr. Aaron Brown, himself a pupil of Dr. Coca. Some twelve thousand tests were made, mostly by the intradermal method, which is acknowledged to be more sensitive than the scratch method. The diseases studied included, among others, eczema, urticaria, angioneurotic edema and erythema multiforme, most of the patients being adults. Innumerable reactions were obtained, the majority of which, however, appeared to have no practical significance. This was especially true of the intradermic tests for foods. I should like to say a word about a case which Drs. Anderson and Ayres mentioned, one of lichen planus apparently due to light sensitization. This I think is a rare occurrence, though I had a similar case of a boy who developed an acute generalized lichen planus following a violent sunburn, the eruption appearing on areas not covered by his bathing trunks.

DR. ARMAND E. COHEN, Louisville, Ky.: I wish to record my observation that dermatitis occurs in a number of atopic patients during the grass as well as the ragweed season. This is explained by the fact that, when the epidermis is the shock organ, the epidermis will react in those allergic individuals who receive a sufficient amount of the excitant to which they are specifically sensitive. I make this statement because the impression may be gained that symptoms are produced only through contact with ragweed pollen or some portion of the ragweed plant. I have observed this dermatitis appearing in patients who get in contact with ragweed or grass only through inhalation. Such dermatitis may likewise occur through artificial injection. When the epidermis is the shock organ, regardless of how the excitant is introduced, the epidermis is the tissue that will react.

DR. ARTHUR F. COCA, New York: Replying to the discussers in the reverse order, I would say to Dr. Peck that I would like to see him alone sometime for an hour or two, and we will try to compose our differences. Dr. Unger asks what oil fraction is used in the treatment of ragweed dermatitis. I am using the oil extracted from the leaf of the plant because I have found this much stronger in skin test than the oil obtained from ragweed pollen that has been thoroughly dried and stored for some time. Under these conditions the oil in ivy leaf deteriorates rather rapidly and I suppose that a similar deterioration takes place in the oil of the stored ragweed pollen. This might explain why farmers have their ragweed dermatitis only in the summer time. The ragweed that they harvest with their other farm products lies open, exposed to the air, and it is quite possible that the excitant in this dry ragweed deteriorates and this is why they show no symptoms during the winter in spite of contact with the dry stuff. I think that it is quite probable that Dr. Waldbott is not right in his idea that pollen may produce urticaria. There are only two ways that I can think of by which urticaria could possibly be caused by contact with pollen: by surface contact or by absorption through the mucous membrane. It is well known that surface contact with a protein does not produce urticaria, as a rule. On the other hand, if the possibility is considered of the urticaria being due to absorption of the proteins through the mucous membranes, there is almost experimental information about that. Urticaria does occur if an overdose of an aqueous pollen extract is injected; but it must be an overdose. One does not get constitutional symptoms from the inhalation of a few grains of pollen during the pollen season. Therefore, on a quantitative basis alone it seems to me quite unlikely that urticaria can be due to the natural contact with pollen. Dr. Rowe states that he has seen a group of patients that were not sensitive to contact with the oil of pollen but were sensitive to the scratch test, and he considers that the oil in these cases was not the excitant of the contact dermatitis. Here there is a conflict with the principle of the separation of the atopic group from the group of contact dermatitis or epidermal allergy. Contact dermatitis is not produced by the water soluble extracts or substances in plants, and the intracutaneous test with the oily excitants of it results negatively. This can be considered an established principle. Therefore, if Rowe's patch test reaction to the oil was nega-

tive, I would rather look into the freshness of the extract or the method of the testing.

DR. LOUIS A. BRUNSTING, Rochester, Minn.: I should like to say that the experiments we did with giant ragweed were controlled by samples of pollen that we obtained from six or seven sources over the country, and in the control cases we applied these samples without getting positive reactions, so that when we reported a negative reaction we meant a negative reaction to more than one sample. I would take issue with Dr. Coca that desensitization with the oil extract in contact dermatitis is usually successful. Dermatologists are not willing to say that for Rhus toxicodendron. Those who have had experience with the desensitization find that the results are extremely desultory. Furthermore, there is no list of data extant to show that the contact irritability of the skin after such injections has been materially reduced quantitatively, and in addition the injection of oil extracts is not entirely without harm. We have seen an exfoliative dermatitis produced in an undertaker who had eczema of the hands and face due to sensitivity to formaldehyde, in whom we injected a minute amount of diluted solution of formaldehyde intradermally. A certain number of patients, florists, for instance, some sensitive to pyrethrum and some sensitive to crysanthemum, have not obtained uniformly good results by such methods. Rather than accept the oil treatment for general usage I would suggest that it be held *sub judice* pending further clinical trial before being used indiscriminately. I would say, with regard to the classification that has been put out didactically between contact dermatitis and atopic eczema, it appears that in a number of instances in contact sensitivity there is a family susceptibility to external irritants.

DR. NELSON PAUL ANDERSON: Answering Dr. Muller, I am not at all familiar with the work that he quoted. Regarding Dr. Michael's suggestion that perhaps sugar metabolism plays a rôle in these cases, there is the observation of Urbach in a case of light sensitivity with hematoporphyrinuria. He treated this patient by means of a high carbohydrate diet and the injection of small doses of insulin, feeling that this relieved some of the stress on the liver. The whole question of liver therapy in light sensitivity needs to be looked into; whether it is due, as it probably is, to its vitamin containing complex or whether it is due to certain sulphur compounds is yet to be determined.

DR. CLEVELAND J. WHITE, Chicago: As a group, dermatologists have not taken the study of diet very seriously; in fact, at times some have held it up as a subject of ridicule. Dr. Sulzberger has sounded a timely warning in these acneform cases in regard to a complete general examination. I am not convinced yet that diet is the cause of all these acneform eruptions. I think it is of great value in many of them, but it is necessary to go further to see if there are not some endocrine changes, and so on. However, the endocrine experts with whom I have talked have not all been able as yet to give much help. As Dr. Driver has said, the most important thing is, if the patient's acne cannot be cured, to give him an x-ray burn in its place and still have some eruption persisting. I think it is extremely important to consider the dietary factors in many such persistent cases before too much roentgen therapy is given. Dr. Rowe emphasized again the necessity of being on the right track and persisting in elimination diets for at least one, two or three weeks. The physician has to talk to these patients to see if they have been really on the diet, because oftentimes they will eat things that they consider in the diet. It takes a great deal of detective work to follow the dietary phase. Dr. Loveman asked about the gastric analyses. There has not been one gastric analysis done in this group of cases. I think possibly the administration of hydrochloric acid may raise the allergic threshold to the foods to which the patient may have been sensitive rather than having any significant meaning as far as the hydrochloric acid contents of the stomach are concerned. Further study will be needed to confirm this impression. Dr. Unger stated the desirability of doing skin tests in these patients. The tests should be persisted in, for occasionally they are very helpful. In this group of cases, the epidermal testing has been of very little aid in detecting the offending specific foods.

IMPORTANCE OF ALLERGY IN ETIOLOGY AND TREATMENT OF NASAL MUCOUS POLYPS

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In a previous communication we [1] presented evidence which in our opinion justified the conclusion that allergy is a constant factor in the etiology of so-called mucous nasal polyps. At this time we present further clinical data which we feel confirm our original view. It may be well at the outset to define the type of lesion to which we refer. Nasal polyps, other than malignant forms, may be classified as (1) mucous polyps or edematous fibromas (a better term we feel is myxoid fibroma); (2) mixed polypoid hyperplasia, and (3) papillary hypertrophy or mulberry polyps.

1. Mucous polyps or edematous fibromas (myxoid fibromas) may be single or multiple and are frequently pedunculated. They are smooth, pale and translucent, varying in color from translucent white or gray to bright yellow tinged with red. Older polyps may show marked discoloration. They possess a characteristic jelly-like softness and their consistency is such that unless palpated by a probe they may at times be mistaken for mucus.

Microscopically, hypertrophy and edema of the tissue from which the polyp has arisen are the striking features. Mucous glands may be lacking or present in scanty remains. The epithelium varies from a thin layer of squamous cells to a thick, many-celled layer of stratified columnar epithelium. Ciliated cells become increasingly rare in older polyps. The bulk of the polyp consists of an edematous tunica propria, with large areolar tissue spaces, containing a considerable quantity of albuminous fluid and showing a tendency to cyst formation. The areolar fibers are loosely disposed, crossing in all directions and enclosing correspondingly indefinite lymphatic clefts. The cellular constituents are relatively inconspicuous (fig. 1) and are bathed by the fluid which wells through the interfascicular spaces. Within these clefts are also lodged the migratory lymphocytes, round cells, plasma cells, mononuclear cells and eosinophils. The eosinophil content will be discussed farther on. When the process has extended deeply, an exostosis of bone may be present at the site of the polyp. This is by far the most frequent form of nasal polyp.

It is the mucous polyp that is the subject of our discussion.

2. Mixed polypoid hyperplasia, as Kaufmann [2] points out, is essentially similar in structure to the mucosa but is more markedly cellular. It is red or grayish red. This group may be subdivided into (*a*) glandular hyperplasia or glandular polyps, and (*b*) angiomatous polyps.

Glandular hyperplasia or glandular polyps, as described by Hopmann,[3] are dense, vascular formations,

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1. Kern, R. A., and Schenck, H. P.: Allergy a Constant Factor in the Etiology of So-called Mucous Nasal Polyps, J. Allergy **4**: 485 (Sept.) 1933.

2. Kaufmann, Edward: Pathology for Students and Practitioners, Philadelphia, P. Blakiston's Son & Co. **1**: 301, 1929.

3. Hopmann, C. M.: Ueber Nasenpolypen, Monatschr. f. Ohrenh. **19**: 161, 1885; Was ist man berechtigt, Nasenpolypen zu nennen? ibid. **21**: 152, 188, 249, 1887.

are usually red, and retain their form on pressure. Histologically, they differ from mucous polyps by being rich in glands and infiltrated with cells, and by having an exclusive origin from the turbinates themselves. By presenting a body separable from the mucous membrane and by being movable with a probe, they may be distinguished from hyperplasia following hypertrophic rhinitis.

Angiomatous polyps comprise a small group of highly vascular lesions of obvious characteristics.

3. Papillary hypertrophy or mulberry polyp is differentiated primarily by its papillary form. Appearing on the posterior end of the inferior turbinate, the mass consists of hyperplasia of the turbinal mucous membrane in which cystic degeneration of the glands and dilatation of the vessels have occurred. This type has by some been considered as a mixed or combination

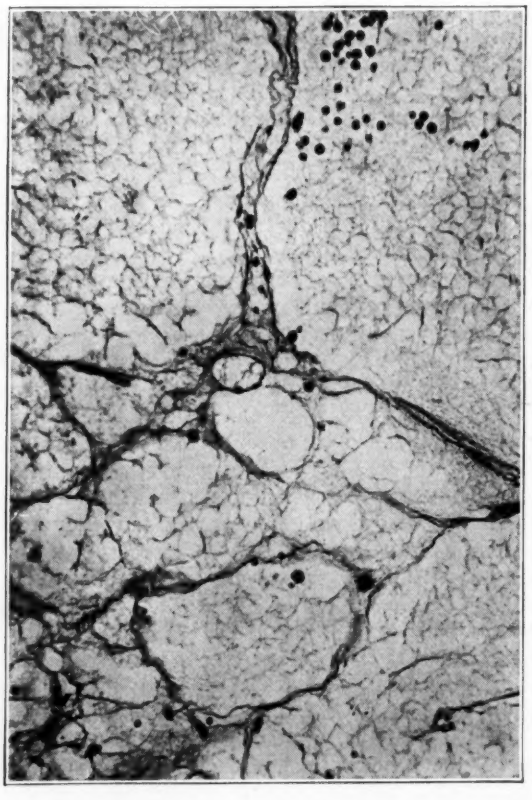

Fig. 1.—Section of a typical mucous polyp under high power: The cells are inconspicuous, while edema of the tunica propria accounts for the bulk of the polyp.

form of glandular and angiomatous polyp mentioned in the preceding section. Its papillary structure, its usually red color and its comparatively firm structure readily differentiate the mulberry from the mucous polyp. Mulberry polyps are relatively infrequent lesions.

That true tumor formations may be frequently mistaken for mucous polyps is well shown in the following case:

A man, aged 56, had had nine operations in ten years for what were thought to be mucous polyps. At the tenth operation, six polyps [4] were removed and the volume of tissue totaled 20 cc. Microscopic examination demonstrated this tissue to be a neurogenic tumor. Dr. Joseph McFarland, to whom we are indebted for the microscopic studies, suggests that the tumor arose from the terminal filaments of the olfactory nerve.

4. The tissue was obtained through the courtesy of Dr. T. Harris Boughton, Mercer Hospital, Trenton, N. J.

A detailed discussion of the theories that have been advanced as to the etiology of mucous polyps was presented in our earlier paper.[1] While various causes of mucous nasal polyps have been proposed and defended from time to time, not one has received complete acceptance. Polyps have been held to be the result of inflammation,[5] infection,[6] necrotizing ethmoiditis,[7] sinus suppuration,[8] vascular disturbances[9] and lymph-vascular disease.[10] Of these the inflammation-infection theory has heretofore been most widely championed.

A constitutional or hereditary factor [11] has been suggested from time to time since the earliest writings on the subject, largely, it would appear, in an attempt to explain the discrepancies between clinical observation and other theories of origin. More recently, Runge [12] has stated that in his opinion the development of polyposis demands the preexistence of a general pathologic alteration of the mucosa, the "hyperplastic mucosal constitution."

ALLERGY IN THE ETIOLOGY OF NASAL MUCOUS POLYPS

That the changes in the nose and sinuses in allergy are similar to those which occur in the bronchial structures in asthma has been pointed out by Hansel,[13] but he was unwilling to admit an allergic factor in the etiology of all mucous polyps, notably in primary sinus infection with polyps. Hirsch [14] has gone further, stating that it is his clinical impression that all mucous polyps may be based on allergy. Recently, Leroux and Delarue [15] noted that every patient presenting polyps rich in eosinophils also had more or less characteristic allergic disease, and that in all patients with allergic disease and polyps, the polyps showed many eosinophils. Wiethe [16] likewise regards allergy as the important

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etiologic factor in the formation of mucous polyps and reports the disappearance of polyps in a patient following desensitization to an allergen.

We wish to present clinical data, obtained since the publication of our original paper, supporting the view that allergy is constantly a factor in the causation of nasal mucous polyps.

TABLE 1.—*Clinical Incidence of Mucous Polyps in Allergic States*

	Total Cases	Number with Polyps	Percentage
Bronchial asthma	600	183	30.5
Vasomotor rhinitis	104	15	14.4
Hay fever (seasonal)	118	16	13.5
Hay fever plus perennial asthma	52	18	34.6

The incidence of nasal mucous polyps is strikingly high in allergic diseases of the respiratory tract. The incidence is highest in those allergic states which continue throughout the year, notably asthma; it is lowest in pollinosis, the allergic disease in which the sensitizing substance acts on the nasal mucosa for only a few weeks each year.

The incidence of nasal mucous polyps is extremely small in patients whose presenting symptoms are those of nonallergic diseases. In studying the relation of paranasal sinus disease to diseases of the lower respiratory tract, as well as to diseases elsewhere in the body, we were struck with the infrequency of nasal polyps in connection with infectious states of the respiratory tract, especially in infection of the sinuses. In seventy-three cases of bronchiectasis, every one of which showed roentgenologic evidence of sinus disease and usually a pansinusitis with dense clouding of the affected sinuses, only a single patient had definite mucous polyps. It therefore seemed highly questionable to us that infection was the sole factor in the etiology of mucous polyps. We then determined to search out the incidence of mucous polyps in a large series of patients suffering primarily from nonallergic diseases and to investigate further from the standpoint of a possible unsuspected allergy those individuals found to have polyps. Of 372 patients with pulmonary tuberculosis as diagnosed in the Medical Division of the Hospital of the University of Pennsylvania, eighty-two gave sufficient evidence of nasal abnormality to lead to a clinical examination of the nose by a rhinologist. Mucous polyps were found in six. Yet forty-five of these patients, especially those with cavitation,

TABLE 2.—*Incidence of Polyps in Routine Examinations of Patients with Nonallergic Disease as Major Complaint*

Presenting Disease	Total Cases	Number with Polyps
Bronchiectasis	73	1
Lung abscess	17	0
Pulmonary tuberculosis	82	6
Arthritis	200	7

mixed infection and profuse sputum, had evidence of sinus disease, which in many instances was most extensive. Of 200 patients with chronic arthritis, in whom an intranasal examination was made in a search for focal infection, seven were found to have mucous polyps. Yet eighty patients were found to have sinus abnormality clinically or roentgenologically. Of seventeen patients with lung abscess, all with extensive sinus disease, none had polyps.

We then attempted to study from the standpoint of allergy the fourteen patients who presented themselves for an obviously nonallergic disease and yet were found to have polyps. In one of these, a supposed polyp proved on section to be carcinoma. Of the other thirteen patients with polyps, ten were found to have asthma, one had asthma and vasomotor rhinitis and one had vasomotor rhinitis alone. The remaining patient, a youth, aged 17 years, with extensive bronchiectasis, gave a pronounced family history of asthma, vasomotor rhinitis and urticaria. At the age of 8 years he had had symptoms that had led an experienced pediatrician to make a diagnosis of bronchial asthma. When tested by us, the patient gave positive skin tests to house dust and feathers.

Fig. 2.—Mucous polyp removed and sectioned during an attack of hay fever: The dense infiltration of eosinophils obscures all other cells. Patient E. R.

DO NASAL MUCOUS POLYPS OCCUR IN THE ABSENCE OF ALLERGY?

In order to find the answer to the question whether nasal polyps occur in the absence of allergy we have been on the watch for all patients who presented themselves to the rhinologist simply because they had nasal symptoms associated with polyps and who did not complain primarily of any obviously allergic disease. These patients were carefully questioned as to allergic disease in themselves and in their families. Whenever possible, complete skin tests were performed and a polyp was removed for microscopic section.

In a careful search during more than a year we succeeded in collecting only twenty-five additional cases of polyps in which the patient had not complained primarily of an allergic condition. These twenty-five

cases were gathered not only from the outpatient department of the Division of Otolaryngology of the Hospital of the University of Pennsylvania with a total number of 2,486 new patients and 6,225 patient-visits in the year, but also included several patients from the private practices of our colleagues who knew of our interest in such cases.

That so small a number was found is in itself good evidence of the rarity of nasal mucous polyps not due to allergy, if indeed they exist at all. In twenty-two of the twenty-five patients, a careful inquiry revealed a definite history of allergic disease, including asthma in

Fig. 3.—Mucous polyp removed after the first frost: Eosinophils have almost completely disappeared. Patient E. R.

thirteen individuals, hay fever in two, vasomotor rhinitis in thirteen, migraine in two and urticaria in one. Yet in none of these cases had allergic disease appeared on the record first submitted. In twenty there was also a definite family history of allergy. Positive skin tests were obtained in seventeen of the nineteen patients tested. Microscopic section showed typical mucous polyps in nineteen of the twenty cases so studied. There was only a single case in which there was neither a personal nor a familial history of allergy and with negative skin tests as well. Microscopic examination of the tissue removed from this patient showed that what clinically had been considered a mucous polyp was in reality glandular hyperplasia and therefore not of allergic origin. The question Do mucous polyps occur in the absence of allergy? we would still answer in the negative as far as our own experience is concerned.

COMMENT

With increased assurance we repeat our original view that probably all patients with typical nasal mucous polyps are allergic. Infection alone, that is, infection in the absence of hypersensitiveness of the individual, does not lead to the formation of typical nasal mucous polyps. To raise the question as to whether there is concerned a hypersensitiveness to inhaled substances only, or to bacteria only, or to combinations of the two is beside the point, although we admit all three possibilities in individual cases. The main point is, we believe, that hypersensitiveness of some type is present and operative in all cases of nasal mucous polyps. For a detailed discussion of the mechanism of allergy in these cases the reader is referred to our previous article.[1]

Nasal mucous polyps represent a pathologic process in which regression to a normal state would appear extremely unlikely. The greatly overstretched mucosa, the poor blood supply and the easy compressibility of the slender pedicles of most of these lesions are obvious reasons against such regression. Yet we have seen typical mucous polyps disappear completely in four cases, merely after treatment of the allergic factor, and Wiethe [16] has reported a similar instance. While it is of course not to be expected that mucous polyps will disappear merely by treating the patient for his allergy, nevertheless the fact that any case has been so cured has some value as evidence for the allergic etiology of these lesions.

The importance of making histologic studies of nasal polyps has not been sufficiently emphasized and the failure to make such a study has led to clinical error.

TABLE 3.—*Allergy in Patients with Nasal Polyps as Their Chief Complaint*

Case Number	Personal Allergy	Familial Allergy	Skin Tests	Microscopy of Polyp
1	+ (A)	+	+	MP
2	+ (A)	?	+	MP
3	+ (A, VMR)	+	+	MP
4	+ (A, HF)	+	+	MP
5	0	0	0	GH
6	+ (VMR)	+	..	MP
7	+ (A, HF)	+	+	MP
8	+ (A, VMR)	+	+	MP
9	+ (A, VMR)	+	+	....
10	+ (A)	0	+	MP
11	+ (A)	..	..	....
12	+ (A)	+	+	MP
13	+ (VMR, M)	+	+	MP
14	+ (VMR)	+	+	MP
15	+ (A)	+	+	MP
16	0	+	..	MP
17	+ (A, VMR)	+	..	MP
18	+ (A)	+	+	MP
19	+ (VMR)	+	..	MP
20	0	+	..	MP
21	+ (VMR)	+	0	MP
22	+ (VMR)	?	+	MP
23	+ (VMR, U)	+	+	....
24	+ (VMR, M)	+	+	....
25	+ (VMR)	+	+	....
Total	22 = + 3 = 0	20 = +	17 = + 2 = 0 6 = ..	19 = MP 1 = GH 5 = ..

A denotes asthma; VMR, vasomotor rhinitis; HF, hay fever; M, migraine; U, urticaria; +, positive; 0, negative; .., no data or not done; MP, mucous polyp; GH, glandular hyperplasia.

Attention is called again to the patient who had ten operations for supposed mucous polyps but only after the last operation was a polyp sectioned and the true diagnosis of neurogenic tumor established. In one of our own cases, the supposed mucous polyps were twice removed before microscopic examination was made and the glandular hyperplasia recognized. It is now our routine procedure to study microscopically the material from all our cases of polyp.

At this point we would call attention to an erroneous interpretation that has been placed by a number of observers on a detail of the histologic structure of mucous polyps. We refer to the matter of eosinophil content. It seems to have been assumed that the presence or absence of eosinophils in mucous polyps represents a constant and unchanging feature of their structure. This has led to the view that those mucous polyps which contain many eosinophils have an allergic origin, whereas those with few or no eosinophils are therefore not of allergic nature. This view we are convinced is incorrect for this reason: Polyps removed from a hay fever patient during his pollen season show many eosinophils (fig. 2); polyps removed from the same patient only a short time after the pollen season is over show practically no eosinophils (fig. 3); yet pollinosis was the only etiologic factor involved. This observation we have made not once but a number of times. It is our opinion that the presence of many eosinophils in a polyp indicates recent exposure to the exciting allergen and, conversely, a paucity of eosinophils suggests that there has not been recent exposure to the allergen.

TREATMENT OF NASAL MUCOUS POLYPS

If it is true that allergy is a constant factor in the causation of mucous polyps, a search for and careful attention to the allergic factor becomes a prime requisite in the study and treatment of all cases of nasal mucous polyps. It is the neglect of the allergic factor that probably accounts for the great frequency with which mucous polyps recur after their operative removal. In polyp cases, therefore, careful sensitization tests should be a routine procedure. When possible, the reacting substances should be avoided; otherwise a thorough attempt at desensitization should be made. Of course, the correction of anatomic abnormalities, the adequate drainage of infected sinuses, the use of vaccines and suitable local treatment are integral and indispensable parts of the management of these cases.

CONCLUSIONS

1. Nasal mucous polyps are extremely common in allergic conditions of the respiratory tract.

2. Nasal mucous polyps are rare in patients with nonallergic diseases of the respiratory tract, even in the presence of extensive and chronic sinus infection.

3. In our experience, all patients with mucous polyps have been found to have either a personal history of allergy or a family history of allergy or positive skin tests and usually all three. No case of nasal mucous polyps has as yet been encountered in the absence of these three.

4. Histologic study of the tissue removed in polyp cases should be made as a routine procedure to guard against diagnostic error.

5. The eosinophil content of polyps may vary from time to time and is dependent on exposure to the causative allergens.

6. The finding of nasal mucous polyps in a patient warrants the assumption that the individual is hypersensitive, and the case should be studied from that standpoint.

7. The treatment of patients with nasal mucous polyps must include attention to the allergic factor; the failure to reckon with this factor is the chief cause for postoperative recurrence.

ABSTRACT OF DISCUSSION

DR. WARREN T. VAUGHAN, Richmond, Va.: Drs. Kern and Schenck conclude that nasal polyps of the mucous type are probably invariably allergic. They emphasize the need for collaboration between the rhinologist and the allergist. There was a time when the rhinologist insisted that all hay fever, vasomotor rhinitis and even asthma belonged in his field. Then the allergist came along and insisted that they were his. Now, not infrequently, each one wishes that it belonged to the other. Most of the past statistics are worthless. In a review of the literature from both fields as to the incidence of nasal disorder or sinus disease in chronic perennial asthma the figures run from 14 to 90 per cent. There is no room for any sort of conclusions here, because there is too much variation. The results of treatment from the rhinologic point of view vary with different authors from zero to a hundred per cent. The trouble is that they have taken every case of asthma and considered it as a single disease. There are many, many forms of asthma, depending on the cause. With allergic therapy one finds it almost as bad, anywhere from 24 to 90 per cent. The reason why it has not been possible to correlate these past observations is that physicians have not distinguished between extrinsic allergy due to factors reaching the subject from without, and intrinsic allergy. Obviously one will not expect to get the same type of result when the cause is due to some intrinsic factor: focal infection, sinus infection, or some other unrecognized factor in the patient himself; and one will find that the results from allergic therapy are far better (68 per cent), in the extrinsic than in the intrinsic cases (27 per cent relief by allergic methods). The latter is the group in which best results are to be obtained by collaboration between the rhinologist and the allergist. Ten years ago the internist who was interested in allergy was considered by his friends a hyperenthusiast. Now, all interested in internal medicine know there is such a thing as allergy. The rhinologists are in about the stage the internists were in ten years ago. There are a few rhinologists who are getting hyperenthusiastic on allergy, but the rhinologist will be in the best possible position to study allergy, preferably in collaboration with an allergist, as soon as he realizes that probably 50 per cent of his patients have some form of allergy that should be recognized and treated.

DR. JONATHAN FORMAN, Columbus, Ohio: Polypi, as they come into the pathologic laboratory, have been, in the past, neglected. The paper of Drs. Kern and Schenck offers a valuable classification that should be in the hands of all pathologists doing tissue work for nose and throat men. With this contribution as a keystone to the arch built by other workers, I feel that it can now be said that the presence of a nasal polypus means the existence in that nose of an allergic state. It must be remembered, however, that by allergy is meant only an altered, unusual reaction. Therefore there must be many different types of allergy. I am saying this so that many men may escape the pitfall of thinking that they can get results by doing a few skin tests. The tests are valuable, I am not decrying them; but they must be used in conjunction with other methods, and they must be used, above all, with brains. There are at least four types of allergic coryza that may form the background for the development of polypi. There is an atopic form characterized by a positive family history, by a personal history of other allergic manifestations, by the presence of the eosinophilia, and, finally, by positive skin tests and passive transfers to normal individuals of the sensitizing antibodies in the serum of the patient. Then there are bacterial allergies, recognized, first, by the elimination of the atopic state, and, secondly, by the history of infection or the demonstration of foci and, finally, by the delayed intracutaneous tests much like the tuberculin reaction to the proper cultures. It is also possible, of course, to have an atopic coryza due to bacterial protein, because bacterial protein is no different from any other protein in its antigenic properties. Then there is what I have dared to call contact allergic coryza, which is recognized by the elimination of both the other types, by the history of exposure and the identification of an offending substance, usually not organic, among the inhalants and contactants of a nose, and by the relief on the avoidance of the offending substance. Finally, there is that group of coryzas which has

been described admirably by Dr. Duke of Kansas City, due to physical agents. If all these things are kept in mind, physicians will begin to look into cases of nasal polypi with a systematic method. They will not be sent to a laboratory and have twenty, thirty, sixty, 200 or 300 skin tests, but they will be studied in a systematic manner. The allergic method must be used carefully and with a well planned program. If one just makes a skin test, one will fall into the error of dermatologists of using intradermal and scratch tests when one should have used contact tests, and using patch tests when one should have used intradermal and contact tests. So here one must use all these methods if one is going to study these patients from the allergic point of view and get the results that one should get. The removal of the polypi without taking care of the allergic background is the explanation of the recurrences that are so frequent.

DR. HARRY L. BAUM, Denver: For many years I have been convinced that most of the edematoses in the nose and in the accessory sinuses are allergic. I have never had the temerity to state definitely that all are and that allergy is the sole cause of nasal and sinus edematoses or mucous polyps. Drs. Kern and Schenck would freely admit that it is not possible to prove conclusively the contention of their paper. They do not claim positive proof, and when it is realized that there is no method of proving definitely that any condition is allergic it would be equally impossible to prove that this particular condition is always allergic. The assumption of allergy must always be based on the results attained when cases are studied according to certain criteria. These criteria are: Does the patient have a personal or family history of allergy? Do his mucous membranes have the clinical appearance of allergy? Does he respond positively to certain skin tests? Are eosinophils present in unusual numbers in his secretions, in his tissues, and possibly in his blood? And, finally, do we have the presumptive evidence of apparent cure by means of the methods of treatment commonly used by allergists? In most instances, some or all of these criteria can be brought to bear with positive results in cases of nasal mucous polypi. Therefore, rhinologists must be willing to accept the tentative conclusion that nasal mucous polypi, in the great majority of instances, are allergic. The paper implies that more nasal diseases are allergic than rhinologists have believed in the past. It has been thought that nasal polypi were indications of sinus disease, and it has been accepted as axiomatic that this was true; but physicians have not gone on to define the nature of this sinus disease. After all, the nasal polyp is nothing more than an extruded portion of the edematous lining membrane of a cavity. Therefore there may be no more disease in that cavity than the edema which results from allergy, and certainly there would be no indication in such a case for surgery within the cavity, because by the removal of the allergic mucous membrane one does not cure the underlying condition, which is systemic and not local. By proper consideration of that one point, medical practitioners may be led to greater conservatism in sinus surgery. Every rhinologist should be, to at least a certain extent, an allergist and should either himself be conversant with the common practices in the study of allergy or should be in close cooperation with one who is; and I am led also to many other implications in regard to sinus diagnosis based on the presence of polypi or edematoses in the nose and sinuses.

DR. H. P. SCHENCK, Philadelphia: Two of the discussers quoted Dr. Kern and me as saying that 100 per cent of nasal polyps are due to allergy. We do not state that all nasal polyps are due to allergy but that all mucous nasal polyps are due to allergy. Photomicrographs showing the typical structure of mucous polyps make their characteristic design evident. In contrast is a photomicrograph showing a neurogenic tumor, possibly a schwannoma (a type of neurofibromatosis), supposedly due to proliferation of cells in the sheath of Schwann. The patient had had nine operations in ten years for the removal of nasal polyps. At the tenth operation, six polyps, amounting to about 20 cc., were removed. Grossly they resembled mucous polyps but microscopic section disproves the clinical diagnosis. The crux of the situation rests on careful pathologic examination of every supposed polyp removed.

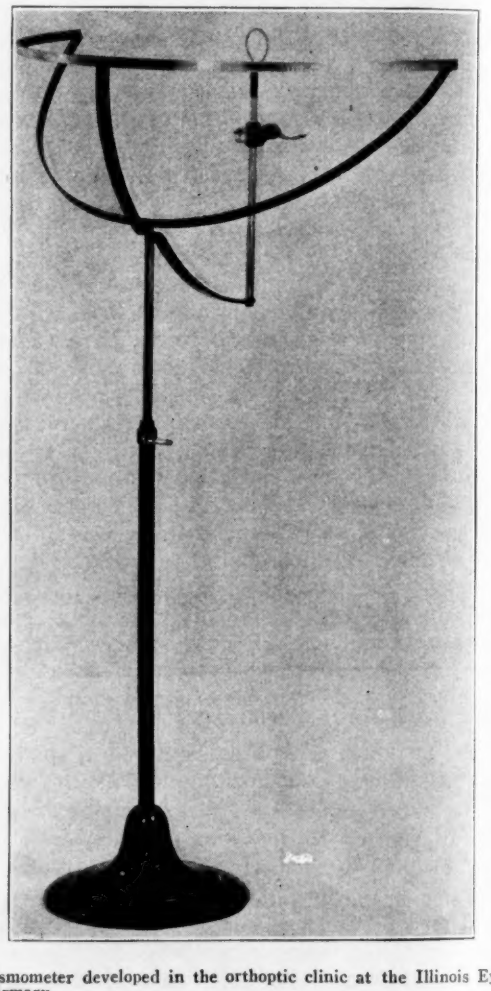
Clinical Notes, Suggestions and New Instruments

A STRABISMOMETER

J. L. BRESSLER, M.D., CHICAGO

Early in September 1933 an orthoptic clinic for the treatment of squint was started at the Illinois Eye and Ear Infirmary. From the beginning, the greatest difficulty with which we were confronted was the getting of accurate measurements of the angle of deviation.

The development of the instrument described here occurred following a suggestion made by Dr. Leo L. Mayer, a member of our staff. In our opinion this instrument has many distinct advantages over the perimeters previously used for this purpose. We first used the ordinary table model perimeter and later Schweigger's hand perimeter. Both of these instruments have obvious faults, which interfered with an accurate determination of the angle.



Strabismometer developed in the orthoptic clinic at the Illinois Eye and Ear Infirmary.

Our new instrument has eliminated many of these objectionable features. Its advantages are as follows:

1. The instrument slides up and down in a tubular weighted stand. It can be firmly fixed at any desired height to accommodate varying heights of patients.

2. It cannot sway from side to side or up and down. Once centered and fixed, it remains so. The eyepiece, which is 13 inches from the center of the arc, is marked so that accurate centration is neither difficult nor a matter of guesswork.

3. The horizontal arc consists of a steel bar about five-eighths inch in height, over which the patient can readily fix

Read before the Section on Ophthalmology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

the distant light and over which the examiner can easily see the reflex of his ophthalmoscope light on the patient's cornea.

4. This arc is marked with graduations in single degrees. All other perimeters have markings only every 10 degrees. Our instrument makes readings more accurate and eliminates guessing.

5. For the near fixation point we have a movable target which slides along the upper edge of the arc and can be placed in position when needed.

This instrument was built for us by Mr. Freeman of the American Optical Company of Chicago.

6254 South Ashland Avenue.

A CASE OF GRANULOPENIA FOLLOWING AMIDOPYRINE, WITH TWO RECURRENCES

WINGATE M. JOHNSON, M.D., WINSTON-SALEM, N. C.

Mrs. B. N. J., aged 41, the wife of a physician, had a left supra-orbital neuralgia for which she took amidopyrine in 5 grain (0.3 Gm.) doses from one to four times a day for about two weeks. On May 6 she began to ache and had a temperature of 100 to 101 F. The next day her gums became moderately inflamed. May 8 she was chilly, the aching became worse, and she began to feel prostrated. The prostration became more marked, the temperature elevation continued, and the gums became swollen and spongy. On May 10 a leukocyte count was 1,400, with no granulocytes. She was taken to the North Carolina Baptist Hospital and given 8 minims (0.5 cc.) of turpentine into the deltoid muscle of the left arm, as suggested by Roberts and Kracke.[1] In addition she was given 10 cc. of pentnucleotide, in the buttocks, twice a day for eight doses. There was a sharp febrile reaction and a very unpleasant feeling of numbness after the first two doses of pentnucleotide, becoming less marked with successive doses. Considerable swelling and pain developed in the region where the turpentine was injected, but this subsided without suppuration.

Daily blood counts were made. From May 10 to 16 the leukocytes remained between 1,400 and 1,550. On May 17 the count was 1,650; May 18, 1,900, with an occasional immature granulocyte. After that successive daily counts were 2,300, 3,600, 4,950 and 6,600 on May 22, with 63 per cent granulocytes. The red blood cells remained throughout between four and a half and five million, with a hemoglobin of 70 per cent.

At this point the patient was allowed to go home. The blood picture was normal, June 2, and a count was not made again until June 11, just at the end of menstruation (she had menstruated the first week in May). She was then feeling so much worse that a blood count was made, and her leukocytes were found to be only 2,100, with 10 per cent granulocytes. She was given daily injections of liver extract, 3 cc. each, for five doses. The leukocytes gradually rose by June 19 to 6,550, with 53 per cent granulocytes.

Her next menstruation began June 29, lasting six days. On July 2 her leukocytes were 4,100, with 50 per cent granulocytes. They rose to 6,450 on July 12, with 64 per cent granulocytes.

Throughout her last two menstruations, the blood picture has remained normal, from 6,150 to 7,000 leukocytes, with 65 to 67 per cent granulocytes.

During the first two menstrual periods after her return from the hospital, the patient took one or two tablets of cibalgine daily for the first two days; during her last period she did not take anything. Each cibalgine tablet contains 3½ grains (0.2 Gm.) of amidopyrine, combined with the hypnotic dial.

While this case may illustrate the deleterious influence of menstruation on granulopenia, as suggested by Thompson,[2] I am reporting it as one more link in the chain of evidence against amidopyrine. The two recurrences when the drug was taken, and the absolute lack of disturbance during the last two menses when it was not taken, certainly suggest that amidopyrine played the villian's rôle in this case.

703 O'Hanlon Building.

1. Roberts, S. R., and Kracke, R. R.: Further Studies on Granulopenia with a Report of Twelve Cases, Ann. Int. Med. **8:** 146 (Aug.) 1934.

2. Thompson, W. P.: Observations on the Possible Relation Between Agranulocytosis and Menstruation, New England J. Med. **210:** 176 (Jan. 25) 1934.

Special Article

ARTIFICIAL PNEUMOTHORAX

CLINICAL LECTURE AT CLEVELAND SESSION

J. ARTHUR MYERS, M.D.
MINNEAPOLIS

Itard coined the term "pneumothorax" in 1803 to designate the existence of air in the pleural cavity. He had observed three cases of spontaneous pneumothorax and made reference to the cases described by Selle and Boyle. Since that time large numbers of cases of spontaneous pneumothorax have been reported, particularly since the advent of the x-rays, and numerous references have been cited in the literature. Thus nature demonstrated that a lung may be partially or completely collapsed while the opposite lung carries on adequately the respiratory functions of the body. Moreover, observation revealed the fact that marked improvement of pulmonary disease sometimes occurs following spontaneous pneumothorax. These facts brought to light great possibilities in both the diagnosis and treatment of chest diseases.

After carrying out several experiments on animals, Carson, a Scotch physician practicing in Liverpool, in 1822 concluded that one lung can be collapsed artificially with safety by introducing air into the pleural space. Although he recommended that artificial pneumothorax be used in the treatment of pulmonary tuberculosis in man, he apparently did not administer it. Only a decade later, McRuer of Bangor, Maine, made some independent observations, which also led him to recommend immobilization of the diseased lung by introduction of air into the pleural cavity. In 1882 Forlanini of Italy also suggested artificial pneumothorax in the treatment of pulmonary tuberculosis.

Although there is reference in the literature to the introduction of air into the chest for the treatment of disease by the Greek physicians in the fourth century B. C., the modern practice of artificial pneumothorax dates back to 1888, when Forlanini introduced air into the pleural cavity of a patient suffering from pleural effusion, and in 1892, when he actually collapsed a diseased lung.

Apparently not knowing of the work of Forlanini and from independent observations and thinking, Murphy of Chicago reported some actual cases he had treated by artificial pneumothorax in 1898. Tice began to use artificial pneumothorax about the same time as Murphy, and Lempke continued the work that Murphy began. Since that time artificial pneumothorax has become a standard method of treatment. Waring speaks of it as a "procedure that has unquestionably saved hundreds of thousands of lives, and as long as mankind suffers from tuberculosis will remain a most valuable method of treatment."

METHOD OF ADMINISTRATION

In collapsing the lung by this method, pure nitrogen, pure oxygen, carbon dioxide and sterile air have been used. Although these gases in pure form may have

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From the Departments of Internal Medicine and Preventive Medicine, University of Minnesota Medical School, and the Lymanhurst School for Tuberculous Children.

certain minor advantages, filtered air has been found to be the most practical and satisfactory.

Simple and inexpensive devices can be made or may be purchased for the administration of air into the pleural cavity. These are equipped with manometers that determine when the point of the needle is in the pleural cavity. When one is certain of this fact, a small amount of air, approximately 25 cc., is allowed to flow into the pleural cavity. If the manometer shows that the pressure is still definitely negative, another 50 cc. of air may be introduced. If the manometer readings are still good, one should continue to introduce small amounts, watching the manometer readings until approximately 200 to 250 cc. has been introduced. This amount suffices for the initial treatment in the case of an adult and should be decreased for children, according to the size of the chest. The second treatment should be administered in approximately forty-eight hours, and here again, with the same meticulous care, one should introduce only small amounts of air between manometer readings until approximately 300 cc. has been introduced, provided the pressure remains negative. The third treatment is administered about seventy-two hours after the second; the fourth about five days after the third. The subsequent treatments may be administered at weekly intervals. Later, many patients may have their intervals increased to ten days or two weeks. However, this must be determined by the rapidity with which the air is absorbed from the pleural cavity and by the degree of collapse one desires to maintain. When no adhesions are present, the lung collapses to the desired degree without the use of positive pressure. When adhesions are present, one is justified in using slight positive pressure after the patient has been on treatment for some time.

Some workers later use high positive pressures in order to stretch the adhesions sufficiently to permit a satisfactory collapse. Others prefer never to use more than a slightly positive pressure because of the possibility of tearing adhesions.

COMPLICATIONS

The passing of a needle through the chest wall for the purpose of introducing air into the pleural cavity is attended by some dangers, which must be recognized by every physician administering this form of treatment. The first is that of gas embolus, which may result if the tip of the needle is in a pulmonary vessel when air is introduced. This accident may be avoided by refraining from the administration of air until the manometer readings indicate with certainty that the point of the needle is in the pleural cavity. Probably a far more common cause of gas embolus is the giving way of an adhesion at its pulmonary attachment, resulting in the tearing of pulmonary vessels in which there is negative pressure. Thus, air that has been introduced into the pleural cavity is readily sucked into these vessels and may be transmitted to the coronary or cerebral arteries. This is a most distressing complication and sometimes is fatal. Fortunately, it occurs rarely. In the administration of approximately 20,000 treatments during the past fourteen years I have seen five cases of gas embolism, only one of which was fatal. The last one occurred six years ago.

Another complication is spontaneous accidental pneumothorax. This may be due to injury by the needle of the visceral pleura and pulmonary tissue immediately subjacent, thus allowing air from the lung to leak into the pleural cavity. The more common cause of this complication is the giving way of an adhesion at its attachment to the visceral pleura, thus producing a fistula through which air passes from the lung to the pleural cavity. Again, spontaneous collapse of the contralateral lung is occasionally seen. Such accidents may occur at any time during the administration of treatment or during the interval between treatments. When the lung spontaneously collapses suddenly and a flap of visceral pleura serves as a valve to prevent the return of air from the pleural cavity to the bronchial tree, relief must be provided by removal of air in a short time to prevent death. I have seen only two patients who I believe died from spontaneous or accidental pneumothorax. In both, death occurred within a few minutes after the onset of symptoms and before a physician could reach them. Although there was no postmortem examination and other physicians are inclined to believe that each patient died of cardiac failure, I am still of the opinion from the symptoms described by members of their families and other associates that death was due to spontaneous pneumothorax.

Another complication is fluid in the pleural cavity. Small serous effusion is seen very frequently in artificial pneumothorax patients. It probably would be found in every case if one searched diligently and persistently enough for it. The serous fluid that lubricates the pleural layers gravitates to the most dependent part of the pleural cavity when air is introduced. Such effusion is of no significance. Large serous effusion occurs less frequently. It is often accompanied by symptoms that closely simulate those of influenza but usually persist longer. After the symptoms subside, the patient regains strength and a sense of well being in a short time. If not aspirated, the fluid may remain for weeks or months and apparently favors the formation of obliterative adhesions, which may make further treatment impossible. Fibrin bodies in the fluid are observed in some cases and cast dense shadows on the x-ray film.

Some large effusions that appear to be only serous in the beginning are later found to be infected with tubercle bacilli or other pyogenic micro-organisms, or both. Thus, empyema becomes a complication that is most serious when it is due to mixed infection. Empyema rarely if ever results from micro-organisms reaching the pleural cavity through the needle. The cause of tuberculous empyema is obvious. Mixed infections usually result from pleural fistulas, which allow pyogenic micro-organisms to pass from the lung into the pleural cavity.

When instituting artificial pneumothorax, one must keep under close observation the mediastinum, since in some persons it is very flexible. This may result in considerable respiratory and cardiac embarrassment. In some cases mediastinal hernia is seen. When the mediastinum is too flexible to allow satisfactory collapse of the diseased lung, there are methods of stabilizing it, such as the introduction of oil into the pleural cavity.

Occasionally febrile reactions result from artificial pneumothorax treatment. They are probably due, for the most part, to increased absorption of toxins as a result of the collapse of the diseased area. These usually are not serious and disappear in a short time.

During and immediately following the first treatment, the patient may experience a sensation in the chest that

is difficult to describe but is often spoken of as "heaviness." This is not significant and usually lasts only a few minutes to an hour or so. During the first twenty-four hours after the first treatment there may be discomfort in the chest, which varies in intensity from a slight ache to excruciating pain. This is caused in most cases by adhesions. The pain may be controlled by codeine. Usually it is not present following subsequent treatments.

In some cases, when artificial pneumothorax is attempted, pleural adhesions are encountered. They may vary in size and extent from those which completely obliterate the pleural space to those which are only thin strands and stretch to such an extent that satisfactory collapse is obtained. Between these extremes are seen adhesions, which become definitely stretched but not enough to permit the closing of cavities or adequate collapse of the diseased area to allow a good clinical result. In many such cases, intrapleural pneumolysis is practiced with great success. The adhesions are cauterized near their attachment to the parietal pleura, following which the lung often collapses in a satisfactory manner as artificial pneumothorax is continued.

In an occasional case, during the first few hours of treatment, air leaks through the needle tract and causes subcutaneous emphysema. This is of no significance but may cause the patient some discomfort and considerable alarm. After the first treatment is administered, the physician should take time to discuss the various possibilities with regard to pain, subcutaneous emphysema, and so on. If this is not done, the patient's confidence may be lost if some of these possibilities actually occur.

EFFECT ON NORMAL AND DISEASED LUNG TISSUE

Since artificial pneumothorax was first instituted, much has been learned about its effect on normal as well as on diseased lung tissue. Through observations it has come to be looked on as a simple procedure rather than a drastic one, as it was at first thought to be. Careful observations have revealed the fact that no serious harm comes to normal lung which is kept under a state of collapse over a long period of time. Gardner has shown that alterations resulting from collapse of the lung consist of the development of fibrous tissue in the pleura and connective tissue coats of the blood vessels and bronchi. The degree of permanent changes caused by artificial pneumothorax in fifteen cases studied pathologically was found to depend on the extent and degree of injury by the tuberculous process. There are slight changes in the circulatory system when artificial pneumothorax is instituted, but they are harmless. The slight deviations from normal sometimes observed in the electrocardiogram are due to pleural and mediastinal adhesions that have altered the position of the heart rather than to myocardial factors. Basal metabolism is not altered in a significant way. Therefore, artificial pneumothorax can no longer be looked on as a drastic procedure when indicated in the treatment of pulmonary disease. Of the various forms of collapse therapy, artificial pneumothorax is the simplest and yet the most effective.

Fortunately, diseased areas in the lungs, except consolidations, dense fibrosis and the like, collapse more readily than normal areas, owing to the fact that in such areas there is little or no diminution of contractility but marked impairment of expansibility. Thus, selective collapse actually occurs. This makes it possible in many cases to keep the diseased area well collapsed while a considerable part of the normal lung tissue is functioning.

ARTIFICIAL PNEUMOTHORAX IN DIAGNOSIS

Since artificial pneumothorax is a simple procedure and when carefully performed does no harm, it has been found to be a very valuable diagnostic procedure, especially in diseases of the mediastinum, pleura, lungs, ribs and chest wall when obscure conditions exist. It has been used to determine definitely whether interlobar empyema exists and whether true cavity formation is present in the lung, as well as in mapping out other pulmonary conditions.

ARTIFICIAL PNEUMOTHORAX IN TREATMENT

Pulmonary Tuberculosis.—Formerly the indications for artificial pneumothorax were hemorrhage, cavity formation, or extensive disease involving one lung. In recent years the indications have been extended. Not long ago a small area of disease in the opposite lung was looked on as a contraindication to artificial pneumothorax. However, paradoxical as it may seem, disease in the opposite lung often improves following the institution of artificial pneumothorax on the side of the more extensive disease. Such improvement is probably due to several factors: First, by reducing the toxemia the patient's general condition is definitely improved, giving the body a better chance to control the lesion in the contralateral lung. Second, the sputum is soon rendered negative or entirely disappears, so that the feeding of the opposite lung and other parts of the respiratory tract with tubercle bacilli is discontinued. Third, the effect of pneumothorax is not confined to the lung being treated but has a slight immobilizing effect on the opposite lung. In case the disease in the opposite lung does not come under control or in case a new lesion appears in it, partial bilateral artificial pneumothorax may be instituted with a good deal of success. The reserve lung capacity is so great that it is possible to collapse each lung to about one-half its volume without causing dyspnea or other discomfort to the patient. A good many workers now look on minimal, progressive pulmonary tuberculosis of the reinfection type as a definite indication for artificial pneumothorax. Conditions that were formerly thought to be a contraindication, such as tuberculous laryngitis and enteritis, are no longer considered so, as they may improve if the pulmonary lesion is brought under control. Even in cases of coexisting pulmonary carcinoma, artificial pneumothorax may render the patient's sputum negative until death results from malignancy. Diabetes is not a contraindication; in fact, many diabetic patients with coexisting pulmonary tuberculosis now have their diabetes treated successfully by modern methods and their pulmonary lesions brought under control by artificial pneumothorax. One of my patients has been under treatment for both conditions since 1925.

The main contraindications for artificial pneumothorax are cardiac disease, asthma, severe grade of emphysema with markedly reduced vital capacity, and extensive bilateral tuberculosis.

Rest has long been looked on as the most important factor in the treatment of a tuberculous lesion in any part of the body. Strict bed rest alone reduces the activities of the lungs very slightly. They continue

breathing at the rate of approximately 25,000 times a day. This probably is one of the reasons why bed rest alone so often fails. With satisfactory collapse by artificial pneumothorax, the diseased organ is actually at rest. This treatment has two main effects on pulmonary tuberculosis. First, the growth of tubercle bacilli is definitely inhibited. Second, venous stasis and some blocking of the lymph circulation occur, which are believed to stimulate the growth of connective tissue and aid in healing. Thus, it is well known that the two factors so significant in the control of tuberculosis are present; namely, the inhibition of proliferation of tubercle bacilli and the stimulation of fibrosis. Relief from symptoms, such as cough and expectoration, fever, increased pulse rate and impaired digestion, is very quickly experienced in many cases.

When cavities are present and their walls are not too thick, artificial pneumothorax closes them by bringing the walls in apposition where they become adherent and are permanently obliterated. Thus, artificial pneumothorax is a simple, harmless procedure and yet most effective in the treatment of pulmonary tuberculosis.

Unfortunately, most of the results of artificial pneumothorax treatment observed to date deal with cases that were moderately or far advanced when the treatment was begun. The first object of artificial pneumothorax treatment is to render the sputum negative or to prevent a case with negative or no sputum from becoming positive, thus protecting the patient as much as possible against endogenous reinfection and protecting his associates and the community against contamination with tubercle bacilli. By the time the disease has become moderately or far advanced most patients have positive sputum, whereas in the minimal stage this is true of only approximately one third.

The Committee on Treatment of the American Sanatorium Association, consisting of Douglass, Peters and others, found that at the termination of artificial pneumothorax as recommended by the physician 66.1 per cent had negative sputum, whereas among those whose lungs reexpanded before their physicians recommended it only 46.9 per cent had negative sputum. A much higher percentage would have had negative sputum if the treatment could have been instituted while the disease was in the minimal stage. They classified 405 patients with reference to sputum at the termination of treatment according to the condition of the treated lung before collapse. Approximately 11 per cent more were negative when slight or no cavitation was present before treatment was begun than among those who had definite cavity formation. Thus, the less disease and destruction done before the lung is collapsed, the better the chances of rendering the sputum negative to tubercle bacilli.

In most groups of cases reported, those in which collapse was possible have shown a 20 per cent or more better chance of becoming well or able to work than those who were not treated by this method. Thus, the treatment is very much worth while even in moderately or far advanced cases, yet many such cases require long periods of bed rest in addition to artificial pneumothorax treatment.

Although the treatment of moderately and far advanced cases by pneumothorax has been found to be far superior to previous forms of treatment, such as strict bed rest, still it was not entirely satisfactory because the patients had often lost their best chances of recovery before the treatment was begun. Therefore the results obtained leave much to be desired. Moreover, when cavities have been formed, a high percentage of patients were disseminating tubercle bacilli to their associates.

Many artificial pneumothorax workers are now of the opinion that this form of therapy is most valuable for patients with minimal lesions. In the past, such lesions have been diagnosed so rarely, and when found so many workers believed that pneumothorax was too drastic for them, that very few reports show the results of artificial pneumothorax on minimal lesions. However, with modern methods of diagnosis, including the tuberculin test and the x-ray film, particularly when used as a part of the periodic examination in the physician's office and in special case-finding campaigns, the percentage of cases found presenting minimal progressive pulmonary tuberculosis is definitely increasing. The disease is found before it has produced symptoms, before great destruction of lung tissue has occurred, and before tubercle bacilli are being eliminated. In these cases, physical signs usually are absent. The diagnosis is made largely by the tuberculin test and the roentgen examination. One is not justified in instituting artificial pneumothorax every time a shadow, minimal in extent, is found in the lung. The roentgen examination is not sufficiently refined to determine on first examination with a high degree of accuracy whether the lesion is of long standing and well controlled or is recent and progressive. To collapse a lung containing the former type of lesion is to do definite injustice to the patient and much unnecessary work. Therefore, before instituting collapse therapy one should keep the lesion under observation long enough to determine that it is progressive. Whenever this fact is established, no matter how small the lesion, it is none too early to institute artificial pneumothorax. To wait until the disease has become extensive, cavities have formed and adhesions are binding the lung at least in part to the chest wall is just as ridiculous as to wait until the appendix has ruptured before performing appendectomy.

I now have approximately fifty patients under observation whose artificial pneumothorax was instituted when the disease was minimal. To date, the results in this group are superior to those in other groups under my care who had artificial pneumothorax instituted after the disease had become moderately or far advanced. The results are also superior to those of other groups of minimal cases whom I have observed as they were treated by bed rest alone. I am convinced that, if the lesions are minimal when the treatment is begun, strict bed rest is necessary for only a short time, if at all, and in most cases the period of hospitalization when necessary can safely be limited to a few weeks. Thus, from the standpoint of rendering the sputum negative, of obtaining good results, that is, restoring good working capacity in a high percentage of cases and saving of the patient's time, the earlier in the course of the disease the treatment is begun, the better.

Any physician practicing artificial pneumothorax therapy to a considerable extent will be confronted with lesions in all stages from minimal to far advanced. The answer to the frequently asked question when should artificial pneumothorax be instituted is to attempt it in all unilateral cases at the earliest possible moment

after the disease is known to be progressive, no matter how minimal or how advanced except when the foregoing contraindications are present. When both lungs are involved, that of the more extensive and progressive disease should be collapsed, provided the better lung is or becomes sufficiently clear to carry on the necessary respiratory functions. The physician frequently meets considerable disappointment, since a fair percentage of patients in whom artificial pneumothorax is definitely indicated as determined by the extent of the lesion have extensive or complete obliteration of the pleural cavity through the development of adhesions. For this group, strict bed rest is indicated and should be supplemented by phrenic exeresis, extrapleural thoracoplasty and extrapleural pneumolysis if necessary. Even though the prognosis is not as favorable in far advanced cases, artificial pneumothorax should be attempted when the better lung appears sufficiently free from disease. Good results are obtained in enough such cases to justify giving every patient the advantage of a trial of artificial pneumothorax. Obviously, the less extensive the disease, the better the general condition of the patient; and the fewer the extrapulmonary complications, the better is the patient's risk.

When one sees the mother with extensive pulmonary tuberculosis, first detected by reason of symptoms a few days or a few weeks after delivery, one can be reasonably certain that the disease did not develop suddenly; that in all probability it had been present in a detectable form long before the pregnancy began. Therefore, many disasters can be avoided when all physicians insist on a careful chest examination, including the x-ray film, of every pregnant woman as early in the course of pregnancy as possible. In the Minneapolis General Hospital and Minnesota General Hospital, there is close cooperation between the obstetric and the chest services. Every woman who presents herself for obstetric care is referred to the chest clinic, where the tuberculin test is administered and x-ray films of the chest are made of all positive reactors. Obviously, if the private practitioners of this country, who do the bulk of medical work, will adopt the same procedure, they will be rewarded many times for their effort through finding in the chest of pregnant women tuberculous lesions previously unsuspected. Often these lesions can be successfully treated by artificial pneumothorax and the pregnancy allowed to continue without any harm to the mother. In our experience, delivery is not rendered more difficult after the institution of artificial pneumothorax. The mother's sputum is prevented from becoming positive or, if positive when the lesion is detected, it may be rendered negative. Although it does not seem wise for such mothers to nurse their infants, they may remain in the home as safe associates of their families. The physician who detects and treats such cases renders a service of inestimable value to the patient, the family and the community. He not only often saves the mother's life or prevents a long period of invalidism, but he protects her children, her husband and many members of the community against contamination with tubercle bacilli.

In the past, artificial pneumothorax has been used very extensively among ambulatory patients. However, most of these patients were submitted to a long period of bed rest after artificial pneumothorax had been instituted. They were later allowed to become ambulatory and return to work, while the artificial pneumothorax treatments were continued. In recent years it has been found that many patients with pulmonary tuberculosis may have artificial pneumothorax instituted without being subjected to strict bed rest, or at most to a few weeks of such rest, while the treatment is being instituted. Reports of the results of such treatment coming from various parts of the world, including a few centers in this country, are very encouraging. Patients on ambulatory treatment from the beginning must be very carefully selected. They will be found among individuals who have minimal or moderately advanced unilateral lesions which are definitely progressive but which have not yet caused serious illness. There should be no significant tuberculous or nontuberculous complications. The sputum may be negative or positive. If it is negative or none is present, one may direct the disease toward healing rather than let it go on progressing. If it is positive, collapse will often render it negative or entirely absent in a short time. The physician often sees patients with advanced disease, mostly unilateral, who refuse hospitalization or do not require it; that is, their general condition is good, they have reasonably good working capacities, but there is always the danger of their bacilli spreading to other parts of the body and to their associates. To collapse the diseased lungs of such patients while they remain ambulatory is a service not only to them but to their communities.

Tuberculosis is frequently seen among elderly persons. While the disease may not cause them serious illness and may not cut short their lives, it may be very dangerous to their associates. In such cases artificial pneumothorax, when possible, protects the community against the spread of their tubercle bacilli while the patients remain ambulatory.

Thus there is a considerable percentage of patients with pulmonary tuberculosis who may now be treated with a short or no period of hospitalization. They avoid the mental complications that so frequently develop from long periods of hospitalization, they are permitted to enjoy their homes, and they continue their earning capacity. We now have under treatment approximately seventy-five such patients who in times past, when we believed it was necessary to hospitalize them, would have cost the taxpayers approximately $75,000 a year. To date, the results have been as good as those obtained in other cases that were treated both by strict bed rest and by collapse. Moreover, the extension of this work to larger numbers of patients makes available beds in institutions, where patients with disease so advanced that it cannot be treated successfully may be isolated.

Artificial pneumothorax is indicated in children only when the lesions are of the reinfection type. Unfortunately, unless tuberculin tests have been administered periodically it is difficult to differentiate between the lesions of the first infection type in the inflammatory stage and lesions of the reinfection type in the infiltrative stage. However, a period of observation often aids in such differentiation. Lesions of the first infection type usually cause slight or no symptoms. They reach their maximum development in a short time, remain stationary, and then begin to resolve, whereas lesions of the reinfection type usually show a tendency to increase in size sooner or later, cause symptoms and present definite evidence of fibrosis, cavitation and other conditions. There is rarely, if ever, any justification

for inducing artificial pneumothorax in the case of a child who has the first infection type of tuberculosis. This statement applies also to the first infection type of tuberculosis in adults. Among 149 children whom we have observed with the first infection type in the inflammatory stage over a period of one to twelve years at the Lymanhurst School, we have not instituted artificial pneumothorax in a single case. When the lesion is found to be of the reinfection type and is demonstrated to be of a progressive nature, no matter how small it is or how young the child, artificial pneumothorax is recommended. This procedure does not lead to deformity unless complications arise, such as empyema; therefore one need have no hesitancy in administering artificial pneumothorax during the period of childhood.

The question which artificial pneumothorax patients most frequently ask the clinician is When may I discontinue the treatments? Unfortunately, symptoms, physical signs and x-ray films are not safe criteria in answering this question. No one can determine with certainty when the tuberculous lesion is so well under control that it will not reactivate if allowed to reexpand. In the earlier days of this work, the lung was usually allowed to reexpand too soon. The disappearance of symptoms and the marked improvement in the patient's general condition led to a false sense of security on the part of the patient as well as of the physician. Experience soon taught us however that, if permanent results were to be obtained, the lung should be collapsed over a long period. No one can lay down a rule as to just how long the treatment should be continued. This is a problem that must be solved for each individual patient. It must depend on several factors, such as the extent of disease when the treatment is instituted, size of the cavities, presence of tubercle bacilli in the sputum, tuberculous and nontuberculous complications, and the patient's general condition. In minimal cases one hesitates to allow the lung to reexpand in less than two years. In moderately or far advanced cases the lung should be kept collapsed for a period of at least three to five years and in many cases much longer; in fact, when large cavities are present and the involvement is extensive when the treatment is instituted, it is doubtful whether the lung should ever be allowed to reexpand. The red cell sedimentation rate, as recommended by such workers as Cutler, may prove a valuable index on this subject. He is of the opinion that, by observing this rate carefully and periodically throughout the course of treatment, one can determine with a reasonably high degree of accuracy when the lesion is well under control.

A very unfortunate fact about artificial pneumothorax work is that one is not able in all cases to continue the collapse as long as one desires. In a fair percentage of patients, adhesions develop in the pleural cavity and finally obliterate the pneumothorax space. The development of such adhesions may be rapid, so that the space is lost in a short time, or it may be slow, thus permitting one to continue the treatment with a partial collapse over a long period of time. When it is obvious that such adhesions are developing, particularly if the space is being lost fairly fast, oleothorax should be instituted at once. In such cases gomenol (an oil obtained from Melaleuca viridiflora) may be used, although many workers are of the opinion that sterilized liquid petrolatum or olive oil has an equally good effect. Thus, through the replacement of air with oil, further development of the obliterative adhesions is prevented or definitely retarded and the lung may be kept collapsed over the desired period of time. Because of complications that sometimes arise with oleothorax, it is not yet considered a substitute for artificial pneumothorax except in special cases.

Other Pulmonary and Bronchial Conditions.—Artificial pneumothorax has been used to some extent in the treatment of bronchiectasis and pulmonary abscess. Although it has not been found as valuable in these conditions as in pulmonary tuberculosis, it is very much worth while in properly selected cases.

Lobar Pneumonia.—One of the recent developments in artificial pneumothorax work has been its administration to patients suffering from lobar pneumonia. In 1921 Friedman reported the results of artificial pneumothorax in seven cases of pneumonia. Since that time, several workers in other countries have used it and the reports to date, although they cover a limited number of patients, are very encouraging. The more recent observations were reported by Coghlan in January 1932 and by Li in September 1932. Each treated six cases. The treatment resulted in almost immediate relief of symptoms, such as fever and pain. In short, artificial crises appeared soon after the treatment was instituted. In fact, fifty cases have been reported in other countries, with forty-seven recoveries.

In this country, Moorman of Oklahoma City instituted artificial pneumothorax in the treatment of two cases of pneumonia in 1930. Lieberman and Leopold of Philadelphia reported the results of their work on therapeutic pneumothorax in experimental lobar pneumonia in dogs in March 1934. They produced lobar pneumonia in thirty-six dogs, eighteen of which were used as controls and eighteen were treated by artificial pneumothorax. Of the treated dogs, fifteen recovered and three died; of the untreated dogs, five recovered and thirteen died. Two of the treated dogs probably died from another cause; thus, the results of treatment were exceptionally good. Of this work Stengel says:

> These results were so confirmative of the clinical experiences reported by several persons . . . that we proceeded to try the treatment in man.

Again he says:

> While this method seems to be a step of value in the treatment of pneumonia, I think it should be emphasized and reemphasized that this is not a treatment which in the state of our present knowledge should be regarded as applicable to influenzal pneumonias or diffuse streptococcal pneumonias, nor should it be used, in my opinion, in any case of pneumonia that is recognized at the time as being in any degree bilateral, even with a small lesion on the opposite side.

In May 1934 Blake of New Haven reported his results in the treatment of twenty early cases of pneumococcic lobar pneumonia by artificial pneumothorax on or before the fourth day of disease. Eleven of his patients had a free pleural space, and all recovered promptly by crisis or rapid lysis with no complications except a sterile pleural effusion in one. In the remaining nine cases, preexisting pleural adhesions were present, which prevented adequate collapse. Although none of these patients died, the disease appeared to run its natural course and two developed empyema.

In June 1934 Behrend and Cowper reported the results of treating eleven patients with unilateral lobar

pneumonia by artificial pneumothorax. Nine patients recovered, and two died, but neither of the fatalities could be directly attributed to the pneumothorax.

Stengel says:

> The very prompt development of a crisis in patients with marked but early lobar pneumonia and the almost immediate improvement in all subjective symptoms is very striking. Taking all the cases together the mortality of pneumonia under this treatment will probably be distinctly limited but it is to be remembered that certain complicating conditions, such as bilateral involvement, the presence of dense pleural adhesions, etc., interfere with the appropriateness and effectiveness of the treatment and possibly these cases may also be those which contribute to elevating the mortality rate of this disease under any kind of treatment. If the mortality from pneumonia were in no degree lowered by pneumothorax, it might still be said that the prompt improvement and the speedy termination of the disease secured by pneumothorax treatment would still constitute a very decided advance.

SUMMARY

1. Forlanini in Italy collapsed a diseased lung in 1892. Murphy of Chicago in 1898 reported a group of cases treated by artificial pneumothorax.

2. Filtered air to the amount of from 200 to 250 cc. is introduced, under carefully observed manometer readings, into the pleural cavity as an initial treatment. The second treatment is given forty-eight hours later; the third seventy-two hours after the second, and the fourth about five days later. The interval between subsequent treatments depends on the extent of collapse and the rate of absorption of air.

3. The complications are gas embolus, spontaneous or accidental pneumothorax, serous effusion, empyema, mediastinal hernia, febrile reactions, pain and subcutaneous emphysema.

4. Artificial pneumothorax has no deleterious effect on normal lung tissue or the other organs, such as the heart. Diseased tissue collapses more readily than normal tissue, so that selective collapse may result.

5. Artificial pneumothorax may be used as a diagnostic measure.

6. Hemorrhage and minimal progressive to far-advanced unilateral pulmonary tuberculosis are indications for pneumothorax. Even bilateral disease, if one lung is not too extensively involved, responds to pneumothorax treatment. Contraindications are cardiac disease, asthma, severe emphysema and advanced bilateral tuberculosis.

7. In moderately and far-advanced cases, successful pneumothorax shortens the period of bed rest necessary, renders the sputum negative, and closes cavities if the walls are not too thick. In minimal progressive lesions it prevents the sputum from becoming positive or, if positive, renders it negative and controls the disease and frequently obviates hospitalization and strict bed rest.

8. Pregnancy is an indication for rather than against pneumothorax, if the disease is discovered at that time because of the beneficial effect for the patient and the possibility of changing the sputum to negative.

9. Treatment by pneumothorax with the patient remaining ambulatory is possible for selected cases, including elderly persons.

10. Pneumothorax is indicated in children if the lesion is of the reinfection type.

11. Several factors must be kept in mind when discontinuation of pneumothorax is acceded to. Minimal cases should continue at least two years, and moderately or far-advanced cases from three to five years or even longer.

12. Oil may be substituted for air if adhesions are forming and obliterating the pleural cavity.

13. Pneumothorax is used to some extent in bronchiectasis, pulmonary abscess and lobar pneumonia.

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Therapeutics

THE THERAPY OF THE COOK COUNTY HOSPITAL

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NOTE.—*In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The series of articles will be continued from time to time in these columns.*—ED.

THERAPY OF ECZEMA (DERMATITIS)

This disorder is a noncontagious exudative inflammation of the skin.

THE CAUSE

The cause is twofold in all cases of true eczema: an irritant (exciting cause) and a special irritability (predisposition) of the skin. Without the latter, one has to deal with simple acute dermatitis. Eczema is always a chronic disease, with, however, a tendency to acute exacerbations.

Exciting Causes.—These must always be looked for and eliminated when discovered. Several of these may act simultaneously. They may be:

(*a*) Chemical: Occupational poisons, as acid, alkalis, turpentine, formaldehyde, toilet articles such as strong soap, dyes (e. g., paraphenylenediamine, which is also used to stain furs), ingestion of medicines.

(*b*) Mechanical: Friction of opposing surfaces, woolen underwear, scratching (as on account of animal parasites), pressure.

(*c*) Thermal: Heat or cold.

(*d*) Actinic: The sun's rays.

(*e*) Allergens: For methods of discovery see "Allergy."

(*f*) Micro-Organisms: Though not perhaps a primary cause, these may act as secondary invaders, aggravating the condition and delaying its healing.

In localized involvement there is a strong probability of the existence of a localized exciting cause, just as in generalized involvement a general (predisposing) cause is probably present.

Predisposing Causes.—These may be found in:

(*a*) The Condition of the Skin: It is desirable to distinguish between the dry, parchment-like skin in which soap as well as roentgen therapy must be avoided and in which bland oils should be used for cleansing and ointments after baths (these patients are better in summer than in winter) and the oily, seborrheic skin, in which roentgen rays are useful to reduce the activity of the sebaceous glands, which may be benefited by reduction in carbohydrate and in which sulphur is likely to be useful.

(*b*) Digestive Disturbance: Feeding must be at regular intervals, nothing being allowed between meals. The feces should be examined for excess of starch (blue with iodine) or fat. In infants, if the stools are acid, green and loose, sugar restriction is indicated.

(*c*) Nutritional Disturbance: In the overweight individual, feeding should be reduced quantitatively as well as qualitatively (especially carbohydrate). In the underweight patient the malnutrition must be corrected.

(*d*) Allergy: Allergy (q. v.), most commonly in infants and to egg, milk, wheat, demands exclusion of the offending food from the dietary.

(*e*) Systemic Disease: In such conditions as diabetes or nephritis the skin is a great storage area for sugar, salt and water. Reduction of salt and of sugar intake may be of special value in exudative skin disease.

(*f*) Focal Infection: This may lower resistance, and its removal may be required for cure.

(*g*) Circulatory Impairment: Eczema of the lower third of the leg may be maintained by varicose veins (q. v.).

(*h*) Disturbance of the Nervous System: As the skin has the greatest vasomotor nerve supply in the body, disturbance of the nervous system, most especially of emotional nature, may prevent healing or cause exacerbations. The "blush area" is particularly affected in this manner.

LOCAL THERAPY

Local therapy requires recognition of three stages: the acute stage, the subacute stage and the chronic stage.

Acute Stage.—In the acute stage, soothing treatment is required. One should avoid water and hypotonic solutions (which increase swelling), ointments (which interfere with drainage and favor proliferation of micro-organisms in the retained exudate), and irritants of all kinds, such as disinfectants, soaps, chafing, rubbing and most especially scratching (for infants, light elbow splints). To remove crusts, a starch poultice (see impetigo) should be used; for cleansing, olive oil or cold cream, a boric acid solution, or a colloid bath (e. g., three cupfuls of oatmeal gruel in a gauze bag, which is squeezed until the warm water becomes opalescent; a cupful of sodium bicarbonate added to the bath enhances its antipruritic value).

(*a*) Cooling Lotions: The cooling effect is produced by their evaporation: hence they must not be applied under an occlusive dressing. They should be used either in the form of compresses, if drainage is aimed at, or as drying applications for protection. Compresses are especially valuable to "clear up" infection.

PRESCRIPTION 1.—*Menthol-Boric Acid Solution*

℞	Menthol	0.015	Gm.
	Boric acid	10.00	Gm.
	Water	500.00	cc.

Apply on gauze compress.

and cold boric acid solution is probably as good as any, provided it is not permitted to dry. If itching is severe, the addition of a minute amount of menthol (prescription 1) may be permissible. Keeping the compress moist is best done by frequent changing of the top dressings without disturbing the lowest layer, to avoid mechanical irritation. When the acutest stage has passed, solution of aluminum subacetate, diluted 1 to 10 and later 1 to 5, is useful. It may be borne in the acutest stage if diluted with ice cold milk. Whenever such moist applications are used, it is well to protect the healthy skin surrounding the lesion with Zinc Paste.

If a drying effect is desired, Calamine Lotion, dabbed on frequently, is likely to be useful on "weeping" surfaces. If crusts form after a repeated reapplication, these need to be removed by means of sweet oil, which may then be removed by a small quantity of egg yolk gently worked up into an emulsion with a little water (Glaze's method).

If Calamine Lotion is found too drying, Calamine Liniment, which is a cream lotion rather than a liniment (because it is not applied by rubbing), might be useful.

PRESCRIPTION 2.—*Calamine Liniment with Phenol*

℞	Phenol, liquified	0.60	cc.
	Calamine liniment	120.00	cc.

Apply freely.

If the itching seems excessive, the addition of a small proportion (0.5 per cent) of phenol (prescription 2) or of menthol or of both, may be admissible. On the whole, however, the less that is used of an irritant antipruritic in acute eczema, the better.

(*b*) Dusting Powders: Powders that are very fine and clinging such as talcum or zinc stearate, protect inflamed skin against friction, light and moisture and hence are especially important in the acute erythematous or the papular (dry) stage of eczema and between opposing body surfaces to prevent chafing. They should be applied liberally by means of a cotton wad. When the back is affected, body and bed linen should be thickly strewn with it, producing a "powder bed."

Subacute Stage.—In the subacute stage the applications may be mildly stimulating, antiseptic and antipruritic. When one is in doubt it is always safer to start with a soothing rather than stimulating remedy and not to apply the latter until improvement under the soothing agent has come to a standstill.

(*a*) Pastes: Pastes with a fatty base should be used only when the surface to which they are to be applied is dry enough for them to stick. They are applied to the lesion as butter is spread over bread.

The chemical reaction of the application is probably of greater significance than has heretofore been surmised. It may explain why one of these salves may aggravate a condition that is soothed by another one. Certain infantile eczemas have been found strongly alkaline, while some cases of eczema in adults were acid. It may be that the acidity of the sweat causes the more superficial lesions to be acid, while the alkalinity of serous exudates may be responsible for alkaline reaction in more deeply located lesions. The N. F. Soft Zinc Paste (Unna's), essentially Lime Liniment (linseed oil and lime water, equal parts) with zinc oxide and chalk (equal parts) to secure a soft pastelike consistency has an alkaline reaction. Of firmer consistency is Zinc Paste (Lassar's), which by reason of its 2 per cent of salicylic acid has an acid reaction and exerts a mildly stimulating effect toward healing. It can be made still firmer, yielding a better crust, by substituting hydrous wool fat for one half of the petrolatum (prescription 3). In this prescription, Coal Tar, which is alkaline, has been incorporated instead of the salicylic acid. A thin crust should be applied when a drying effect is desired, a thick crust when one wishes to soften and macerate. Such a crust may be best kept in place by means of a thin sheet of cotton and a bandage. Before a fresh application is made, the old one is removed with petrolatum or oil, provided it comes off readily. If not, it is left in place. Water should not be employed to remove it.

(*b*) Ointments: These have a softening effect as compared with pastes and they are indicated when the affected surface has become dry and is inclined to crack. Zinc salve may be used or a calamine zinc salve (prescription 4) if a somewhat flesh-colored zinc salve be desired, as for eczema of the ears.

When there is much itching, resorcinol 1 or 2 per cent or menthol (not above 2 per cent) may be added to Ointment of Rose Water (prescription 5), which by reason of the water it contains has a cooling and somewhat antipruritic effect of its own.

PRESCRIPTION 3.—*Zinc Paste with Wool Fat*

℞ Coal tar ..... 1.00 cc.
Zinc oxide .....
Starch .....
Hydrous wool fat .....
Petrolatum .....of each 12.50 Gm.
Apply as a rather thick crust and dust freely with talcum powder.

PRESCRIPTION 4.—*Calamine Zinc Salve*

℞ Calamine ..... 4.00 Gm.
Zinc oxide ointment ..... 30.00 Gm.
Apply twice daily.

PRESCRIPTION 5.—*Ointment of Rose Water with Menthol*

℞ Menthol ..... 0.60 Gm.
Ointment of rose water ..... 30.00 Gm.
Apply to itching part as required.

Chronic Stage.—In the chronic stage, stimulating (irritative) applications are indicated, and their strength should be in proportion to the chronicity of the condition. To be on the safe side, one may start with a mild application; but if no result is secured one should not hesitate to double or quadruple the strength. If excessive irritation occurs, one should promptly change to an appropriate soothing application, whereupon healing may take place that, without the interlude of irritation, might not have occurred.

(*a*) Lotions: These are especially suitable for application to extensive areas. A good example of a stimulating lotion is the Coal Tar Solution of the National Formulary. It is generally best to prescribe this lotion to be diluted by the patient, possibly with 20 parts of water to start with, and have him progressively double the strength. In some cases, even full strength may be tolerated with benefit. If one cannot rely on the patient's intelligence to carry out such instructions, a dilution of definite strength (prescription 6) had better be prescribed. It may afford great relief of the itching, and at the same time stimulate healing. A paste dressing might be applied over night.

PRESCRIPTION 6.—*Diluted Coal Tar Solution*

℞ Coal tar solution ..... 30.00 cc.
Glycerin ..... 8.00 cc.
Solution of calcium hydroxide ..... 60.00 cc.
Water .....to make 180.00 cc.
Apply three or more times daily.

(*b*) Ointments: These are preferably medicated with reducing agents, as such bodies stimulate the formation of horny epithelium (keratoplastic action). Most popular among these are the tars and sulphur.

Tars. Among the tars, the choice would lie between Wood Tar (which is acid), Oil of Cade (a tar prepared from juniper wood, which has the least unpleasant odor), Coal Tar (which is alkaline) and Sulphurated Bitumen (ichthyol), which is also alkaline and contains a considerable amount of sulphur. From 5 to 50 per cent of any one of these added to an ointment base may secure the desired degree and kind of stimulation. The tars are contraindicated in hairy places because of their tendency to produce folliculitis (tar acne).

Tar derivatives, less offensive because colorless and odorless, are of similar value. Most prominent among these are resorcinol and salicylic acid. Resorcinol (prescription 7), which has considerable antipruritic value, may be employed for purpose of stimulation in a strength of from 5 to 20 per cent. In the higher concentrations it causes peeling of the skin (discutient effect). It may be incorporated in a paste base if protection and maceration are desired. As it has a tendency to darken, it should not be used on the scalp. The brown stain produced by it on the clothing or the skin, may be removed by citric acid solution. Salicylic acid is devoid of any staining tendency and in strengths of .10 per cent (prescription 8) is a good discutient.

PRESCRIPTION 7.—*Resorcinol Salve*

℞ Resorcinol ..... 1.50 Gm.
Hydrous wool fat ..... 10.00 Gm.
Petrolatum ..... 20.00 Gm.
Apply locally with friction.

PRESCRIPTION 8.—*Salicylic Acid Ointment*

℞ Salicylic acid ..... 3.00 Gm.
Hydrous wool fat ..... 15.00 Gm.
Petrolatum ..... 15.00 Gm.
To be rubbed in twice daily (in squamous eczema of the hands or feet).

Sulphur is perhaps especially indicated by skin with a seborrheic greasy tendency. Its strength may range from 3 to 30 per cent according to the tolerance of the lesion. The official Sulphur Ointment is 15 per cent in strength. The ointment base in which it is incorporated may vary from Benzoinated Lard, if a relaxant effect is desired, to Zinc Paste, if a protectant crust is aimed at.

PRESCRIPTION 9.—*Film for Obstinate Itching*

℞ Oil of cade ..... 3.00 cc.
Flexible collodion ..... 30.00 cc.
Paint on lesions.

PRESCRIPTION 10.—*Film for Thickened Epidermis*

℞ Salicylic acid ..... 3.00 Gm.
Flexible Collodion ..... 30.00 cc.
Paint on two coats twice daily until peeling occurs.

(*c*) Films: For obstinate itching (prescription 9) or to secure peeling of excessively thickened epidermis (prescription 10), films are useful.

(*d*) Irradiation: While contraindicated in acute cases, irradiation is useful in the chronic stage. Ultraviolet rays are believed to be especially valuable in cases associated with bacterial infections. General exposure to one erythema dose, with a second degree erythema dose to the affected area, may be given two or three times weekly. Roentgen rays often give spectacular results in subacute and chronic cases. They are usually given in fractional doses, 75 roentgens, at intervals of a week, carefully kept below an erythema dose. Radium is especially valuable in locations difficult to treat by roentgen rays, as in the treatment of fissured, crusted or lichenified patches. As the skin treated with x-rays and radium undergoes more or less permanent changes, their rather spectacular effect should not be resorted to until after the cause has been identified and removed. Resorting to this treatment repeatedly to remedy recurrences may result in dire damage to the skin.

Only soothing or at most but mildly stimulating applications are admissible in connection with radiation treatment.

CONSTITUTIONAL TREATMENT

If causal systemic treatment (q. v.) is not required, and even when it is, one may employ:

(*a*) Restorative Therapy: In the presence of anemia iron may be used or, to improve nutrition, cod liver oil.

(*b*) Alterative Therapy: Alkalis (potassium citrate or acetate) enough to alkalinize the urine may be useful in acute stages. Arsenic, while contraindicated in the acute form, may be useful in chronic cases characterized by dryness and thickening of the skin.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS ADOPTED THE FOLLOWING REPORT.

H. A. CARTER, Secretary.

HYPERPYREXIA PRODUCED BY PHYSICAL AGENTS

Recently a survey of hyperpyrexia produced by physical agents has been carried out by the Council on Physical Therapy, requiring a period of about five months. The object of the survey was to evaluate the efficacy and to determine the dangers connected with the production of fever by physical agents. A list of questions was sent to physicians who have published articles on the subject of hyperpyrexia or have in some way been familiar with the subject. Thirty-four replies were tabulated.

Number of Physicians Reporting Who Have Given Artificial Fever Therapy

For six years	3
For five years	3
For four years	9
For three years	12
For two years	5
For one year	2
Average number of years	3.3

Several sources of energy were reported as having been tried; for example, diathermy, radiant energy, hot water baths, and various sources of high frequency current. Many physicians employed more than one source of energy.

Of this group questioned, more physicians made use of diathermy than any other method. Radiothermy, produced by either tubes or spark gap, came next. Radiant heat, infra-red cabinets, hot water baths, electric blankets, electric light cabinets, so-called nebulized spray cabinets or steam baths, electromagnetic induction and air conditioning came in the order named. One investigator reported the use of paraffin baths. Another reported giving hyperpyrexia by means of wrapping the patients in blankets and using no other source of heat except hot fluids administered by mouth.

The evidence presented did not indicate the number of patients treated by the various methods. It would appear, however, that more patients have been treated by diathermy than by any other method.

More patients afflicted with dementia paralytica were treated than any other disease mentioned. Multiple sclerosis came next, and then in order syphilis, chronic arthritis, asthma, tabes, gonorrhea, gonorrheal arthritis and circulatory disturbances of the extremities.

The work that has been done up to this time indicates certain definite clinical possibilities; however, the lack of statistical evidence does not warrant publishing the therapeutic possibilities or indications.

Fifteen of the thirty-four physicians reported untoward results, while seven replies on this question were too indefinite to tabulate. Thirteen reported burns, most of them being minor burns and due predominantly to the use of electrodes in the diathermy treatment. Some reported burns on the skin surface caused by local action of the high frequency electric field. One investigator stated nothing serious. Six physicians reported that untoward results were due to the technic used. Another reported the untoward results due to faulty judgment and another to the effect of too rapid rise in temperature. In the set of questions sent out to physicians, one asked for the number of patients treated and another for the number of deaths traceable to the treatment of hyperpyrexia by physical agents. A total of forty-eight hundred and nine patients were treated by thirty-four physicians. Twenty-one physicians reported no deaths, while thirteen reported twenty-nine deaths.

One physician reported that out of seven deaths attributable to the treatment given he believed quite definitely that four were due to the humidity in the infra-red cabinet as a complicating factor. One physician reported that two deaths occurred as the indirect result of treatment.

One question asked was whether any complications had been observed, for example, in the cardiovascular system, genito-urinary system and nervous system. Nearly all the physicians reported that they had no complications. However, several did report heat stroke, circulatory collapse, herpes of the cornea, cerebral hemorrhage, albuminuria, tetany and convulsions.

Physicians reported that complete examination was always given to the patient and that any patients with cardiovascular diseases were not given the treatment.

After a careful study of this survey it appears that any type of machine or apparatus may be used with equal success, provided the person in charge is thoroughly competent and the technician under him is attentive and well informed as to the facts and dangers involved. The Council believes that the technic and administration of this treatment should be given as much study as a surgeon gives to a specialty or a certain branch of surgery. It is probable that any good scalpel will render efficient service in the hands of a skilful surgeon but would be a highly dangerous instrument in the hands of one not proficient in its use.

The Council believes that to subject a patient to an artificial fever of from 105 to 106 F., sustained for five hours or more, is to subject him to a fairly strenuous cardiovascular functional test. Patients with normal heart, kidneys and blood vessels tolerate it well, but patients with myocardial degeneration or with valvular, coronary or other cardiac abnormalities, with impaired renal function from organic disease, with excessively high blood pressure or arteriosclerosis, or with tuberculosis, diabetes or far advanced syphilis of the central nervous system (late, rapidly progressing neglected cases or patients who are totally demented) do not tolerate such treatment well and should not be subjected to it.

CONTRAINDICATIONS

For the reasons given, advanced age (with a few exceptions 60 years may be taken as an arbitrary limit), cardiac or renal insufficiency, rheumatic endocarditis, aortic aneurysm, advanced arteriosclerosis, pulmonary tuberculosis, diabetes, and late neglected neurosyphilis that has progressed to complete dementia should be regarded as absolute contraindications.

In selecting patients for artificial fever therapy, therefore, more than casual attention must be given to such complications. Otherwise, unnecessary fatalities may occur.

PRELIMINARY STUDY

Every patient should undergo a thorough physical examination and clinical investigation. The following laboratory studies should be made:

Electrocardiogram.

In patients suffering from infections or gonorrheal arthritis, a thorough roentgenographic examination should be made.

Complete blood count before and after each session of treatment.

Sedimentation time.

Coagulation time.

In syphilitic patients, besides the foregoing, a Wassermann test, Kline test, Kahn test, globulin test, colloidal gold test, cell count, and protein determination of spinal fluid.

The Council on Physical Therapy, after studying this problem, realizes that this preliminary survey is far from complete. However, the survey does show that the treatment of disease by means of hyperpyrexia is now established but that the best method for administering artificial fever induced by physical agents that can be employed with safety, convenience and comfort to the patient and is subject to complete control by adequately trained physicians is not firmly established. The Council believes that this method should be used only in hospitals, surrounded with the safeguards commonly employed in a major surgical operation and under the direction of skilled physicians. The assisting technician should have ample training and experience and must be capable of recognizing untoward symptoms and know ways of avoiding dangers.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

DEXTROSE (See New and Nonofficial Remedies, 1934, p. 270).

The following dosage forms have been accepted:

Solution Dextrose-U. S. P., 25 Gm., 50 cc., in Bottles: Each bottle contains dextrose-U. S. P., 25 Gm., in sufficient distilled water to make 50 cc.

Prepared by the Cutter Laboratory, Berkeley, Calif.

Solution Dextrose-U. S. P., 50 Gm., 100 cc., in Bottles: Each bottle contains dextrose-U. S. P., 50 Gm., in sufficient distilled water to make 100 cc.

Prepared by the Cutter Laboratory, Berkeley, Calif.

Solution Dextrose-U. S. P. 5% in Saftiflask Containers: Each Saftiflask contains 1,000 cc. of a solution containing 52.5 Gm. of dextrose-U. S. P.

Prepared by the Cutter Laboratory, Berkeley, Calif.

Solution Dextrose-U. S. P. 10% in Saftiflask Containers: Each Saftiflask contains 1,000 cc. of a solution containing 105 Gm. of dextrose-U. S. P.

Prepared by the Cutter Laboratory, Berkeley, Calif.

RABIES VACCINE (See New and Nonofficial Remedies, 1934, p. 378).

The National Drug Co., Philadelphia.

Rabies Vaccine (Human), (Chloroform Killed)—N. D. Co.—Antirabic vaccine prepared according to a modification of the method of David Semple (chloroform killed). The brains and spinal cords of rabbits killed on the sixth or seventh day after inoculation with fluid rabies virus are ground with physiologic solution of sodium chloride containing 2 per cent chloroform, to yield a 25 per cent suspension of brain and cord substance. The suspension is then placed in the refrigerator at 2 to 5 C. for two months. It is then tested for absence of living virus by rabbit injection. The finished product represents a 25 per cent emulsion.

Marketed in packages of fourteen vials, each containing a dose of 0.5 cc., and in packages of fourteen syringes, each containing a dose of 0.5 cc.

ORTAL SODIUM (See THE JOURNAL, March 24, 1934, p. 928).

The following dosage form has been accepted:

Capsules Ortal Sodium, ¼ grain (0.05 Gm.).

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

"VITA-CELL" NOT ACCEPTABLE FOR N. N. R.

Under the uninformative proprietary name "Vita-Cell," Godissart and Pyles, Hollywood, Calif., market a series of products: Vita-Cell—Surgical, Vita-Cell—Dental, Vita-Cell—Home Treatment, Vita-Cell—Dental Plastic, Vita-Cell—Ointment, Vita-Cell—Soap. The firm presented these products for consideration by the Council.

"Vita-Cell" is claimed to be "A Superior Antiseptic, Deodorant and Healing Agent." The advertising circular states: "VITA-CELL is the result of years of research by the Medical Profession and chemists of Europe, and more recently by dentists and physicians of the United States. A new principle of therapeutics has been evolved and its application perfected . . . the result . . . VITA-CELL!" This is typical of the advertising propaganda for the product. In submitting the product to the Council the firm stated:

"For purely commercial reasons, we are reluctant to offer, at this time, a quantitative statement of composition."

"As Vita-Cell is a secret formula, a statement of the process of manufacture must necessarily be limited."

The Council, of course, cannot consider the acceptance of a product of secret composition.

Although at various places in the advertising it is stated that "Vita-Cell" is not intended as a "cure-all," throughout the advertising the product is recommended in a host of conditions, from "athlete's foot" to venereal infections. As evidence to support these multitudinous claims, the firm submitted a case report from The All Nations Clinic, Los Angeles, and ten letters from physicians, dentists and an animal pathologist, which are in effect no more than testimonials and are of no value as controlled scientific evidence. The extensive therapeutic claims for the product may therefore be said to be almost entirely unsupported.

If "Vita-Cell" were the "result of years of research" which the firm's advertising claims it to be, it is needless to point out that there would not be lacking in medical literature reports on its composition and probable or actual therapeutic value. No such reports are known to the Council, and the firm has failed to call attention to any such if they do exist. The "Vita-Cell" Dental XX Home Treatment package and circular are obviously directed to the general public, which is in direct contravention of the Council's rules. The danger of indiscriminate reliance of the public on this preparation for all the conditions for which it is claimed to be of value is too obvious to need further discussion.

The Council declared "Vita-Cell" and the submitted forms under which it is marketed unacceptable for New and Nonofficial Remedies, because the preparation is of secret composition and is marketed under an uninformative proprietary name with exaggerated and unwarranted therapeutic claims in such a way as to lead to its ill advised use by the public.

When the foregoing was sent to Godissart and Pyles, the firm replied that it had "abundant evidence to confirm all our claims" and promised to "make clinical control tests in the manner prescribed by your Council of Therapeutics if you will be kind enough to describe to us the technique you desire." The Council holds the burden of proof for such claims to lie justly on the firm which makes them. The firm has not submitted any evidence for the therapeutic value of "Vita-Cell" and "Vita-Cell" preparations other than that already found unacceptable by the Council. No quantitative statement of composition has been submitted.

Before receiving the Council's report, the firm had informed the Secretary that a revision of labels and advertising in conformance with the suggestion of the Department of Agriculture was contemplated. After considerable correspondence the firm submitted some "revised" labels and cartons. These are essentially as objectionable as those submitted before.

In view of the firm's failure to make the products acceptable, the Council voted to confirm its rejection of "Vita-Cell" and the submitted "Vita-Cell" preparations.

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SATURDAY, OCTOBER 27, 1934

"DOCTORS, DOLLARS AND DISEASE"—RADIO EDUCATION OR PROPAGANDA

In 1929 a series of meetings called by the American Association for Adult Education resulted in the formation of a body known as the National Advisory Council on Radio in Education, Inc. Its general purpose is said to be to "further the development of the art of radio broadcasting in American Education." Recently, Congress enacted some legislation entitled "The Federal Communications Commission Act," which automatically abolished the Federal Radio Commission. This act also makes it mandatory on the new commission "to study the proposal that Congress by statute allocate fixed percentages of radio broadcasting facilities to particular types or kinds of nonprofit radio programs" and to report to Congress by Feb. 1, 1935.

The National Advisory Council on Radio in Education, Inc., is exceedingly interested in this problem, because it has made education of the public over the radio its particular province since the time of its organization. The Council wants more time on the air for education. In a recently issued circular, the director says "The council is an organization independent of faction, nonpartisan in its procedure, disinterested as to personnel and noncommercial in operation." Notwithstanding these assertions, the medical profession is now confronted with the promotion by the National Advisory Council on Radio in Education, Inc., of a series of broadcasts under the title "Doctors, Dollars and Disease," said to be presented by the Public Health Committee of the National Advisory Council on Radio in Education, Inc. These programs are offered every Monday evening over WABC, Columbia network, extending from coast to coast, at 7:45 Pacific time, 8:45 Mountain time, 9:45 Central time, and 10:45 Eastern time.

Let us then view the nature of the organization of the Public Health Committee which prepared the program and the nature of the program itself to see to what extent the National Advisory Council on Radio in Education, Inc., has fulfilled its claims of being independent of faction and nonpartisan in procedure. The Public Health Committee includes as its chairman William Trufant Foster. This is the same Foster, an economist and not a physician, who attacked organized medicine bitterly at a conference held in Philadelphia last February, fully reported in THE JOURNAL, March 3, page 701. Associated with Mr. Foster on this committee are the following physicians: Ray Lyman Wilbur, chairman of the Committee on the Costs of Medical Care and signer of its majority report; Thomas Parran Jr., health officer of the state of New York, committed in repeated addresses to compulsory health insurance and measures leading to the socialization of medicine; Haven Emerson, formerly a president of the American Public Health Association and a signer of the majority report. Included with these four are Alice Hamilton, a distinguished investigator in industrial diseases, whose writings indicate nevertheless that her pity for the sad fate of the majority of mankind overbalances her scientific judgment in matters of social control, and, last of all, Dr. Hugh S. Cumming, surgeon general of the United States Public Health Service. It will be obvious to any one that this Public Health Committee of the National Advisory Council on Radio in Education, Inc., is overwhelmingly controlled by the state medicine and socialization of medicine points of view, and that it contains no definite representative of the 100,000 physicians organized as the American Medical Association.

The radio program developed under the auspices of this committee is, as might have been expected, overwhelmingly for the socialization of medical care. It contains the name of but one person who signed the minority report of the Committee on the Costs of Medical Care, and there are indications that he accepted under a misapprehension as to the nature of the program and will not appear. Those who are to discuss the future of medical care and the subject of medical economics are for the most part nonmedical men, unfamiliar with medical practice and for the most part definitely opposed in their writings to the policies of organized medicine. Representing the opposite point of view are Walter P. Bowers, editor of the *New England Journal of Medicine,* who has made that periodical largely the organ of the majority report of the Committee on the Costs of Medical Care, Thomas Parran, George H. Bigelow, Haven Emerson and Ray Lyman Wilbur, who speak as physicians on this program. These are, all of them, proponents who would change seriously the nature of medical practice. Among the laymen listed are such well known names as Edward A. Filene, Michael M. Davis, C. Rufus Rorem, Nathan Sinai, I. S. Falk, Edgar Sydenstricker and Harry H. Moore. It calls the roll of the agitators from the Committee on the Costs of Medical Care. Other speakers include Foster, Paul H. Douglas of the Uni-

versity of Chicago, Robert Jolly of Houston, Texas, and Livingston Farrand, president of Cornell University, the latter as an M.D., who has for long been somewhat out of touch with medical affairs.

It should be clear to any physician that this program indicates an attempt on the part of the interests represented in the majority report of the Committee on the Costs of Medical Care to further its propaganda. In developing a program of this type the National Advisory Council on Radio in Education, Inc., has been untrue to the principles on which it was established. Thereby it fails to merit support from the medical profession. Nevertheless, physicians will do well to be aware of the matter and to use such influence as they may possess with the radio stations that carry such material to bring about a realization of its true nature.

It might have been within the province of the National Advisory Council on Radio in Education, Inc., to develop a series of useful lectures on the prevention of disease and on the maintenance of health. It might have used some of the time, which apparently it is able to get without charge from the broadcasting chains, for the enlightenment of the public on many of the scientific fallacies promoted by commercial interests. It has, however, failed to avail itself of these opportunities, devoting itself and its time instead to what constitutes essentially an undermining of the medical profession of this country. It would be interesting to know the motives that animated the executive officers of the National Advisory Council on Radio in Education, Inc., to lend themselves to this propaganda.

LATENT AND ARTIFICIAL IMMUNIZATION AGAINST DIPHTHERIA

Until recently the British navy maintained in London a semiclosed school of boys, the Greenwich Hospital School, which offered an unusually favorable opportunity to study infection and immunization in diphtheria. Full advantage has been taken of this opportunity, as shown by the recent report [1] on the results of studies that were made. From 1921 to 1928, tests for Schick immunity were carried on regularly but artificial immunization was not practiced, while from 1928 to April 1933, artificial immunization was practiced. Consequently clinical and carrier infection as well as latent immunization could be studied by the same methods under natural and artificial immunity.

By latent immunization is meant the appearance of specific diphtheria antitoxin in the blood due only to environmental circumstances, presumably subclinical and carrier infection with diphtheria bacilli. It must be understood clearly that while the operation of certain racial and genetic factors cannot be excluded in latent immunization, this antitoxin is not inborn but the product of antigenic stimulation by diphtheria toxin. In the Greenwich Hospital School it was found that under natural conditions (1921-1928) from 30 to 40 per cent of groups of Schick reactors became latently immune in the course of four months when the prevalence of diphtheria in the school was high; furthermore, that the spread of latent immunity bore a close relation to the seasonal variation in clinical diphtheria, there being much more immunization in the winter than in the summer months. These observations establish again and clearly the development of latent immunization and Schick immunity as diphtheria spreads in an unprotected community. The results of various types of specific prevention of diphtheria in the Greenwich Hospital School may be summarized briefly as follows: The induction of a negative Schick test—Schick immunity—by artificial means gives practically complete protection against clinical diphtheria in the protected individuals but has no preventive influence on symptomless or carrier infection, which on the contrary actually is increased. In other words, active immunization against diphtheria as now practiced with toxin-antitoxin or some form of toxoid does not prevent but tends to increase carrier infection with diphtheria bacilli. From this important fact, which is supported by ample and convincing evidence, it follows that in a given community incomplete immunization may be followed by increase in clinical diphtheria in case the susceptible, unprotected portion outnumbers the protected. The apparent failures of certain antidiphtheria campaigns are explainable by this circumstance, which also makes it clear why it is essential to immunize children in the preschool years. Incomplete immunization may increase the risk of infection proportionately more than it increases the herd immunity. Again, while artificial prevention may protect the individual, he may become a potential danger in the home or group where there are susceptibles. How is this paradox to be explained that specific prevention may protect the individual and yet be the means of spreading the infection? Simply on the ground that the symptoms of diphtheria are caused by the exotoxin of the diphtheria bacillus, and it is the exotoxin that is neutralized by the antitoxin called forth by the injection of the antigenic toxin or toxoid. The immunity in diphtheria is antitoxic, directed against the toxin, rather than antibacterial and directed against the bacillus itself. Without the action of the toxin the main pathogenic agent in diphtheria, infection with the diphtheria bacillus, is of little significance and virtually symptomless.

Precisely similar conditions obtain in scarlet fever, in which the essential immunity and protection also depend on specific antitoxic action. There is, however, no evidence at hand to indicate that the toxin of the scarlet fever streptococcus toxin has been changed to

1. Dudley, S. F.; May, P. M., and O'Flynn, J. A.: Active Immunization Against Diphtheria: Its Effect on the Distribution of Antitoxic Immunity and Carrier Infection, Medical Research Council, Special Report Series, No. 195, London, 1934.

toxoid like the diphtheria toxin. The Schick test in diphtheria and the Dick test in scarlet fever are each dependent on the respective antitoxins in the blood.

Among other interesting observations by the English investigators may be noted the facts that tonsillectomy lowers carrier infection and that there appears no great difference between the different types of diphtheria bacilli as immunizing agents. Their observations and comments on immunity against diphtheria toxin, Schick immunity, are of special interest. This immunity may not be permanent, but nevertheless a degree of protection may persist because the body once subjected to the antigenic toxin will respond with increased promptness and range to renewed antigenic stimuli. This deduction is in full harmony with a principle of immunity. Fortified by reinfection from the environment the immunity may become permanent, but immunizability and durability of immunity vary depending on genetic make-up and environmental experience. On the whole the diminution or loss of Schick immunity is regarded as of small consequence. The conception of the interaction between latent and artificial immunization against diphtheria toxin and thus against diphtheria are stated well in this quotation (p. 98): "Although an artificial immunizing agent may be too weak to produce a durable Schick immunity unaided by latent immunization, the artificial agent may act as a primary sensitizing stimulus to those who are about to receive further stimuli from the natural immunizing influences in a diphtherial environment."

Finally a word on the epidemiology of diphtheria as illustrated by the noteworthy study under consideration: In the conditions of herd immunity and herd infection here studied so closely one cannot but be impressed with the tendency of host and parasite to mutual adaptation. When the prevalence of diphtheria increases antitoxic immunity rises, and as the incidence falls the susceptibility increases. The reaction of parasite and host on each other prevents destruction of either by the other and determines the amount of diphtheria at any time and place.

EXTRAMEDULLARY HEMATOPOIESIS IN MAN

One of the most striking examples of the "safety devices" for insuring the adequate functioning of vital tissues in times of stress is the protective mechanism that operates to maintain a sufficient quantity of circulating red blood cells. A sudden loss of blood, for example, is compensated for by the rapid release from the bone marrow of immature erythrocytes, by the reticulocytes, and by an outpouring of stored red cells from certain reservoirs. If the blood loss is more severe or prolonged, the erythrogenic marrow itself may hypertrophy within its bony casing, more or less completely replacing the fatty marrow within a short time. Spicules of bone or even the inner portions of the bone shaft may disappear, apparently to provide additional space for the expanding red marrow. If these adjustments still fail to meet the demand for increased erythrogenesis, blood production in other tissues may take place. The phenomenon of extramedullary hematopoiesis is particularly pronounced in pathologic processes in which the marrow tissue is damaged or is replaced by a malignant growth. Usually under these conditions the process of blood formation is taken over more or less directly by the primitive erythrogenic tissues, namely the spleen, the principal blood producing organ during the fetal period, and the liver, the erythropoietic organ of the embryo. However, myeloid metaplasia frequently occurs in other tissues or organs, such as the kidneys, lymph nodes, suprarenals, thymus, pleura, falx cerebri and the broad ligaments, or in adipose tissue.

Clinically, extramedullary hematopoiesis apparently takes place more frequently than has been generally supposed. Although a few reports of extramedullary blood formation in certain types of anemia and leukemia have appeared in the literature during the past decade, general recognition of the phenomenon is comparatively recent. Extensive ectopic hematopoiesis was reported several years ago [1] in a case of von Jaksch's anemia in an infant. Large, tumor-like masses of hematogenic tissue were found in several tissues, particularly in hili of the kidneys. Similar observations were made in an adult with anemia due to chronic hemorrhage; widespread extramedullary hematopoiesis was observed, in addition to distinct hyperplasia of the bone marrow. More recently,[2] extramedullary erythropoiesis was reported in two cases of severe anemia resulting from a damaged bone marrow. In one case, active blood formation in the lymph nodes followed atrophic changes in the myeloid tissue of the bone marrow and spleen. In the other subject, a case of metastatic adenocarcinoma of the prostate associated with almost complete replacement of the bone marrow and lymph nodes, vigorous blood formation occurred in the spleen. The foregoing clinical cases afford a convincing demonstration of the ability of the embryonic and fetal blood forming tissues even in adult life to resume their primitive functions in order to compensate for a loss of other myeloid tissue.

The histogenic processes involved in the establishing of extramedullary erythropoiesis are not well understood. Some information of value in elucidating the problem has been obtained in a current study on the transformation of adipose tissue into hematopoietic tissue.[3] Apparently the parent cells, having the appearance of small lymphocytes, may originate from the local stromal cells or perhaps may represent migrants from

1. Brannan, Dorsey: Extramedullary Hematopoiesis in Anemias, Bull. Johns Hopkins Hosp. **41**: 104 (Aug.) 1927.
2. Jordan, H. E.: Extramedullary Erythrocytopoiesis in Man, Arch. Path. **18**: 1 (July) 1934.
3. Jordan, H. E.: The Transformation of Adipose Tissue into Hemocytopoietic Tissue, Anat. Rec. **59**: 461 (July) 1934.

adjacent lymphatics. These cells accumulate in certain areas about the capillaries and develop into typical hemocytoblasts, which, according to the theory endorsed by Jordan, migrate into the adjacent capillary and finally differentiate into mature erythrocytes.

Thus, at the present time there is unfolding another fascinating story of processes that enable the human organism to survive adverse circumstances.

Current Comment

THE DOCTOR AND THE LEGISLATOR

Next week physicians throughout the country will be voting for men who will represent them in the next Congress. They will in many places be expressing their approval also of candidates for legislative, judicial and executive offices in various state and minor divisions of our government. The time has come when it is desirable for every man to express himself definitely by the ballot and in other ways on the nature of our government. There are indications that plans are being developed for new legislation leading to modifications in the form of medical practice, varying from compulsory health insurance to complete state medicine. Again and again it has been said that physicians exercise a powerful influence, owing to the support which is obtainable from those to whom they have given professional ministrations. It is important that they utilize such influence in maintaining medical practice at the professional level which it has reached in this country —a level which is higher than that of any other country in the world and which at the same time gives to the average American a better quality of medical service than is given to the average man in any other nation. Recently in private conversation and in other ways several of the leading statesmen of this country have indicated to executives of the American Medical Association that there is just one way in which the average citizen may make his influence definitely felt in relationship to proposed legislation; that is, to bring his opinion and that of his associates directly to the legislator. Senators and congressmen equally are influenced by letters from their constituents and by messages from well established organizations indicating their point of view. No one knows at this moment just what type of legislation will be advanced by the administration itself in relationship to these matters, nor is there any definiteness concerning proposals which individual legislators may advance on the urging of interested bodies. Physicians will be kept informed of proposed legislation through THE JOURNAL and through the *Bulletin of the American Medical Association*. It is important that they know now the points of view of the legislators to whom they give their support and that they inform such legislators, when elected, of their feelings in regard to such social legislation as may come before the next Congress. Such positive action should yield definite results.

Association News

MEDICAL BROADCASTS

Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, central standard time. The next three broadcasts will be as follows:

November 1. The Common Drinking Cup, W. W. Bauer, M.D.
November 8. Your Child's Sleep, W. W. Bauer, M.D.
November 15. The Health Audit, W. W. Bauer, M.D.

National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15, central standard time. The next three broadcasts will be as follows:

October 30. Diphtheria Must Go, W. W. Bauer, M.D.
November 6. The Fight Against Appendicitis, W. W. Bauer, M.D.
November 13. Does Medicine Cost Too Much? Morris Fishbein, M.D.

The radio stations from which the program is available are as follows:

Middle Atlantic States:
WJZ New York
WSRY Syracuse, N. Y.
KDKA Pittsburgh

East North Central States:
WCKY Cincinnati
WENR Chicago
WIBA Madison, Wis.

West North Central States:
KSTP St. Paul
WEBC Duluth, Minn.
KFYR Bismarck, N. D.
KWCR Cedar Rapids, Iowa
WREN Kansas City, Mo.
KWK St. Louis
KSO Des Moines, Iowa

South Atlantic States:
WBAL Baltimore
WMAL Washington
WTAR Norfolk, Va.
WPTF Raleigh, N. C.
WWNC Asheville, N. C.
WSOC Gastonia, N. C.
WIS Columbia, S. C.

East South Central States:
WSM Nashville, Tenn.
WMC Memphis, Tenn.
WJDX Jackson, Miss.

West South Central States:
KVOO Tulsa, Okla.
WKY Oklahoma City
WFAA Dallas, Texas.
KTBS Shreveport, La.
WOAI San Antonio, Texas

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Investigation of Eclectic Diplomas and Licenses.—Officials have been cooperating with the Eclectic State Medical Board of Arkansas in an investigation of the issuance of fraudulent diplomas and the irregular licensure of eclectic physicians in Arkansas. With the focus of the investigation apparently on graduates of the Kansas City College of Medicine, the charter of which was revoked in 1926, reciprocity licentiates from eclectic boards in other states are also under inquiry. At present, Arkansas is the only state having an eclectic board. The licenses of the following persons were revoked at a recent meeting of the board for the reasons indicated:

J. Sidney Pierce, Little Rock, conviction on charges involving moral turpitude.
Auxenty Miroch, Bloomfield, Va., fraudulent credentials.
William S. Dews, Wynne, fraudulent credentials.
Erick F. Ebert, St. Louis, fraudulent credentials.
Lee Fisher, Little Rock, fraudulent credentials.
Harold S. Bayless, address unknown, fraudulent credentials.

The license of Charles Wade Page, Banks, was revoked on a charge of its having been obtained by fraud and deception. The testimony revealed that Page also had licenses under the names of Charles Russell Conway and Charles William Pagel; these licenses also were revoked. Records indicate that, in 1915, Charles William Pagel, following the revocation of his Indiana and Illinois licenses for forgery and immoral acts, was arrested as the alleged head of a gang of automobile thieves. In 1918, Pagel had his name changed officially to Charles Russell Conway. Later a report came announcing the death of Charles Russell Conway, Greensburg, Ind., at La Ceiba, Honduras, C. A., Dec. 29, 1921. The recent investigation has revealed this report to be false. In the interim, one Charles Wade Page

had been licensed in Florida in 1919, claiming graduation from a Missouri eclectic school. This license was revoked in 1930 following the charge of "stealing an automobile." On this charge he was given a five year sentence to the Florida State Farm at Raiford. After serving little more than a year he was given a pardon on condition that he leave the state. In 1924, Page was licensed in Arkansas, claiming graduation from the American Medical College, St. Louis, in 1902. When a newly appointed board began checking its licentiates and called for reregistration, the discrepancies were noted. Subsequent investigations revealed Page, Conway and Pagel to be the same person. Pagel was listed "address unknown," but Page and Conway were located, according to the records, at Banks and New Edinburgh. Records show that as Pagel he graduated from the American Medical College, St. Louis, in 1896. Ali Yhia Debeh, faced with a similar charge, did not appear, but was represented by an attorney who asked for a continuance since Debeh could not be located. The license was revoked on the testimony presented, but this action of the board was later enjoined by the court. Dews testified that negotiations which he had with one George M. Lindsay, Kansas City, Mo., "developed into the procuring of a diploma in the Kansas City College of Medicine and Surgery, Kansas City, Mo., and a license to practice medicine in the state of Arkansas." For these, Dews is said to have given Lindsay $500 with a promise of an additional $1,500 at some future date. Dews stated that he had two years in the "University of Illinois at Jacksonville, Illinois." Paul D. Wesson, Hazen, who pleaded guilty to violating the Harrison Narcotic Act, was placed on probation for six months. Date R. Alexander, the founder of the Kansas City College of Medicine and Surgery in 1915 and the former dean of the Eclectic Medical University of Kansas City, testified at the trials, stating that these men had never attended the Kansas City College of Medicine and Surgery; that he had never seen them before and that the credentials in their possession were forged. A resolution was adopted at this meeting of the board to continue to investigate all licentiates who had obtained their license by fraudulent methods, and those who were chronic inebriates or addicted to the use of narcotics.

CALIFORNIA

Southern California Meeting.—The Southern California Medical Association will hold its next semiannual meeting in Los Angeles, November 2-3. Dr. Laurence Selling, clinical professor of medicine, University of Oregon Medical School, Portland, will be the guest speaker. He will deliver his paper Friday evening on "Diagnosis of Epilepsy." Other speakers will be:

Dr. Cullen Ward Irish, Cerebrovascular Lesions, a Clinical Pathologic Survey.
Dr. Arthur E. Guedel, Apnea Under Anesthesia.
Drs. Nelson Paul Anderson and Samuel Ayres Jr., Diagnosis and Treatment of Common Skin Diseases in School Children.
Drs. James F. Anderson and Bernard J. Hanley, Review of 190 Cases of Heart Disease Complicating Pregnancy.
Dr. John L. Pomeroy, Public Health and Medical Coordination in Poliomyelitis Control.
Dr. Egerton Crispin, Schüller-Christian's Disease (Lipoid Xanthomatosis).
Drs. Francis M. Pottenger and Francis M. Pottenger Jr., The Suprarenal Hormones in Relationship to General Medicine.
John F. Kessel, Ph.D., Dysenteries in Southern California.

All the speakers are from Los Angeles, except the Drs. Pottenger of Monrovia. A clinical pathologic conference will be held Saturday morning in the new unit of the Los Angeles General Hospital, under the direction of Drs. Newton G. Evans and Ernest M. Hall and members of the clinical staff.

Chiropractic-Physical Therapy Initiative.—A chiropractic-physical therapy initiative, to be voted on by the electorate, November 6, proposes to create a public corporation, the State Chiropractic Association, and to confer on a board of directors of that corporation exclusive jurisdiction over the practice of chiropractic and of physical therapy. Two types of licenses are to be issued by the board of directors: (1) a license to practice chiropractic; (2) a license to practice physical therapy. No person may obtain a license to practice physical therapy unless he first obtains a license to practice chiropractic. A chiropractic licentiate will be permitted to adjust "by hand to restore to normal any abnormal anatomic disrelation in the condition of human beings." A physical therapy licentiate will be authorized to practice obstetrics, to use, prescribe and practice prophylactic hygiene and sanitation and dietetics "including in any form, herbs, oils and all animal and vegetable foods," and to use all "systems, methods or instruments in diagnosis, including the use of Roentgen Rays." Such a licentiate, also, may employ electrotherapy, hydrotherapy, manipulative therapeutics, heat and light therapy, heliotherapy and mechanotherapy, in the treatment of physical or mental conditions of human beings. The provisions of the California medical practice act are not repealed by the proposed measure "unless they conflict" therewith. Chiropractic and physical therapy licentiates will be permitted to practice in all institutions supported wholly or in part by public funds.

COLORADO

Society News.—The Denver Society of Internal Medicine presented the program before the Medical Society of the City and County of Denver, October 2; speakers were Drs. Clough T. Burnett on "The Congestive Heart," and Wilfred S. Dennis, "Xanthomatosis."——The medical care of families on federal aid in Long district, Weld County and Boulder County was discussed by Drs. Virgil J. Jernigan, Longmont, Myron W. Cooke, Erie, and Fred C. Klopfenstein, Boulder, before the Boulder County Medical Society in Boulder, October 11; Mr. C. H. Sievers discussed federal relief. Cases of ruptured appendix, sarcoma of the mediastinum and retroperitoneal sarcoma were presented by Drs. Oscar M. Gilbert, Boulder, and Willard J. White, Longmont.

CONNECTICUT

Personal.—Yandell Henderson, Ph.D., professor of applied physiology, Yale University School of Medicine, addressed the Brazilian Academy of Medicine in Rio de Janeiro, September 7, on "Asphyxia and Resuscitation." He also spoke at the opening of the new building of the Institute of Hygiene in São Paulo, Brazil, September 17, and gave an address before the local medical society, September 18.

Report on Tuberculosis Campaign.—Thirty-three cases of tuberculosis were found in the campaign to detect tuberculosis which was carried on during the past school year in Connecticut. According to provisional figures, there were 56,942 roentgenograms taken of school children in 142 towns. Of these, no evidence of tuberculous lesion was found in 54,376. Calcific or fibrocalcific deposits suggesting healed or healing primary tuberculous disease were found in 972, and evidence of pulmonary disease, probably active tuberculosis, in 33. This tuberculosis survey among school children was sponsored by the state health department, the state medical society, the state board of education and the state tuberculosis commission, with the cooperation of various local and state agencies. The state plan evolved from one carried out in New Haven under the auspices of the departments of health and education. Roentgenograms taken total about one sixth of the public school enrolment. The completion of the examination for diagnosis brings to a close the first procedure recommended by the state tuberculosis commission. The second will be a study of the patient's family to discover the source of infection in cases in which tuberculosis is found.

ILLINOIS

Credit Bureau.—At a meeting of the Peoria City Medical Society, September 5, it was voted unanimously to establish and maintain a medical business bureau. The bureau will be controlled by the society and managed by a special board named by the president, according to *Peoria Medical News*. Dues of the society have been increased from $14 to $15 a year to maintain the bureau.

Society News.—Dr. William R. Cubbins, Chicago, addressed the Rock Island County Medical Society, October 9, on "Fractures of the Lateral Condyle of the Tibia."——At a meeting of the Will-Grundy County Medical Society, October 10, Dr. Philip Lewin presented a paper on "The Classification, Etiology and Treatment of Arthritis."——Dr. Clarence O. Sappington, Chicago, addressed the Peoria City Medical Society, October 16, on occupational diseases.

Chicago

Discussion of Appendicitis.—The theme of the program of the Chicago Medical Society, November 7, will be a discussion of appendicitis. Speakers will be:

Dr. Leroy H. Sloan, assistant clinical professor of medicine, Rush Medical College, Its Early Recognition in General Practice.
Dr. John O. Bower, clinical professor of surgical research, Temple University School of Medicine, Philadelphia, Apparent Increase of Mortality Rate and Its Causes.
Dr. Karl A. Meyer, medical superintendent of Cook County Hospital, Surgical Problems in Acute Appendicitis.

Society News.—At a meeting of the Chicago Pathological Society, October 8, Dr. Edwin F. Hirsch, among others, spoke on "Generalized Osteosclerosis with Chronic Polycythemia Vera." The presidential address was given by Dr. Isadore Pilot on "Hemolytic Streptococci, Their Present Status and Relationship to Certain Clinical Entities."——A symposium on collapse therapy was presented before the Chicago Tuberculosis

Society, October 11, by Drs. Frederick Tice, Allan J. Hruby, Karl J. Henrichsen, Robert F. Berry and Henry C. Sweany.——Dr. Traian Leucutia, Detroit, discussed "Further Contributions to the Problems of Superhigh Voltage Roentgen Therapy" before the Chicago Roentgen Society, October 11, and Dr. Benjamin H. Orndoff gave a report on the fourth International Congress of Radiology.——At a meeting of the Chicago Orthopedic Club, October 12, Dr. Arthur Steindler, Iowa City, among others, discussed "Tuberculosis of the Wrist."——Dr. Robert von der Heydt discussed "The Ageing Lens" before the Chicago Ophthalmological Society, October 15, among other speakers.——Dr. Leon Unger addressed the Chicago Society of Allergy, among others, October 15, on "Turpentine Abscesses in Treatment of Intractable Asthma."——Speakers before the Chicago Pediatric Society, October 16, were Drs. Arthur H. Parmelee on "Physiologic Changes of Adolescence" and Bert I. Beverly on "Psychologic Problems of the Adolescent."——"What Organized Medicine Has Done for Society" was the title of a public lecture by Dr. Morris Fishbein, editor of THE JOURNAL, October 18. The lecture, sponsored by the Jackson Park branch of the Chicago Medical Society, was given in the Hyde Park High School Auditorium.

Anniversary of Institute for Juvenile Research.—The twenty-fifth anniversary of the Institute for Juvenile Research was observed at the Medinah Club, September 28. Speakers included Dr. William Healy, director of the Judge Baker Foundation, Boston, on "What Twenty-Five Years Have Taught Us About the Problems of Childhood"; Dr. David M. Levy, formerly chief of staff, Institute of Child Guidance, New York, "Recent Trends in the Study of Behavior Problems"; Dr. Julius H. Hess, "Contribution of the Institute to Services for Children from the Medical Point of View," and Mr. Henry P. Chandler, authority on child welfare legislation, "The Place of Experts in Public Welfare." The Institute for Juvenile Research, the first child guidance clinic established in the United States, was founded in 1909 through gifts of Mrs. William F. Dummer and under the direction of Dr. Healy. At the end of the first five years, the financial support of the institute was assumed by the board of commissioners of Cook County and, when Dr. Healy left Chicago in 1917 to take charge of the Judge Baker Foundation, it was transferred to the state department of public welfare. At that time Dr. Herman M. Adler, now of Berkeley, Calif., became director and continued in that capacity until 1930, when Dr. Paul L. Schroeder became director of the institute. While the work of the institute was originally limited to the treatment of children brought before the Cook County Juvenile Court, during recent years the scope of its activities has been extended to agencies throughout the entire state. It is concerned with the examination of children who present problems of social adjustment, conduct or personality, and seeks to aid parents, teachers and social agencies in the better understanding and development of the child. In 1925, Dr. Adler organized the Behavior Research Fund which has functioned as an adjunct to the institute and carried on various research projects which could not be financed by state appropriations. Ernest W. Burgess, Ph.D., is director of the fund.

IOWA

Personal.—Dr. Carl L. Gillies, Cedar Rapids, was recently appointed associate professor of roentgenology at the University of Iowa College of Medicine, Iowa City.——Dr. Erwin Schenck, Des Moines, has been appointed a member of the state board of medical examiners.——Dr. George H. Parmenter has taken over the duties of chief of the medical staff at the U. S. Veterans' Hospital, Des Moines. He held a similar position in Fort Harrison, Mont.——Dr. Hubert L. Hollenbeck, Osceola, is retiring from active practice on account of ill health. Dr. William L. Wall, formerly of Osceola, will take over Dr. Hollenbeck's practice.

Graduate Courses.—Nearly one sixth of the membership of the Iowa State Medical Society is enrolled for the fall series of courses promoted by the speakers' bureau, the journal of the society reports. The medical course is being given in Dubuque, Davenport and Fort Madison, while the one on surgery is in Humboldt, Ames and Ottumwa. Both courses are running for ten weeks. In addition, fifty-two physicians in the northeastern section of the state are taking the short graduate course on anatomy, planned by a specially appointed committee of the First District Medical Society. Dr. Ewen M. MacEwen, professor of anatomy, State University of Iowa College of Medicine, is lecturing in this series, which opened in September and will continue on the second Thursday of each month until April. The lectures are given in the Miller Hotel in New Hampton.

KANSAS

New Editorial Board.—The October issue of *The Journal of the Kansas Medical Society* introduces a new editorial board which, with Dr. William M. Mills, Topeka, as editor, is comprised of Drs. Lucien R. Pyle, Robert B. Stewart and Floyd C. Taggart, Topeka. Clarence Munns is the managing editor. Formerly there were twelve associate editors.

Preventive Medicine Program.—A special meeting was held by the Sedgwick County Medical Society, Wichita, October 9, to consider the subject of preventive medicine. Henry F. Vaughan, Dr.P.H., health commissioner of Detroit, was the principal speaker. With this meeting the committee on public health of the society launched a "sustained project in the field of prevention." Dr. Hugh L. Dwyer reported on immunization campaigns in Kansas City, Mo.

Personal.—Dr. Edwin D. Ebright, Wichita, was awarded the president's cup on winning the annual golf tournament of the Sedgwick County Medical Society, September 21; his score was 80. A new challenge trophy, presented by Dr. Hal E. Marshall, Wichita, was won by Dr. Norris L. Rainey, Wichita, for low net score.——At a recent meeting of the Brown County Medical Society, Dr. Raymond J. Portman, Hiawatha, was presented with a set of sterling silver as a token of esteem by Dr. William G. Emery on behalf of the society. Dr. Portman has moved from Hiawatha to Antigo, Wis.

MASSACHUSETTS

Society News.—A symposium on pneumonia will be conducted before the Suffolk District Medical Society, November 28, by Drs. Frederick T. Lord, Edward D. Churchill and Roderick Heffron, Boston. Mr. Sidney Lamb, secretary of the Mersey Hospital Council, Liverpool, England, discussed voluntary health insurance before the society, October 12.——Dr. Arthur P. Noyes, Howard, R. I., addressed the New England Society of Psychiatry in Waltham, October 10. His subject was "Psychotherapy in State Hospitals."——Dr. Frederick A. Coller, professor of surgery, University of Michigan Medical School, Ann Arbor, Mich., discussed "Water Losses in Surgical Patients" before the Harvard Medical Society, October 23.——At a meeting of the William Harvey Society, October 17, Dr. Emil Novak, Baltimore, spoke on "The Endocrines in Gynecology."——Drs. Max Ritvo, Boston, and George A. Moore, Brockton, discussed gastroduodenal hemorrhages from the roentgenologic and surgical points of view, respectively, before the Plymouth District Medical Society at Brockton, October 25. Dr. Alfred L. Duncombe, Brockton, considered the "Treatment of Barbiturate Poisoning."

MINNESOTA

Medical Field Representative.—George B. Larson, St. Paul, has been named to the newly created position of medical field representative for emergency medical relief for the Minnesota State Medical Association. Mr. Larson, who took over his duties September 4, has for the last six years been executive secretary of the Polk County Medical Society, Frederic, Wis. One of his first undertakings will be the organization of emergency advisory and contact committees in each county.

NEBRASKA

Clinical Assembly in Omaha.—The Omaha Midwest Clinical Society will present its second annual assembly, October 29-November 2, with headquarters at the Hotel Paxton. Lectures in general assembly by guest speakers, lecture courses given by Omaha physicians and clinics will make up the week's program. Guest speakers will be the following:

Dr. Walter L. Bierring, Des Moines, Iowa, President of the American Medical Association, The Educational Function of the American Medical Association.

Dr. Richard H. Jaffe, Chicago, The Value of Biopsy; Pathology of Essential Hypertension.

Dr. Carl Henry Davis, Milwaukee, Hypothyroidism in Gynecology and Obstetrics; Indications for Cesarean Section.

Dr. Cyrus C. Sturgis, Ann Arbor, Mich., Treatment of Some Types of Secondary Anemia; Diagnosis and Treatment of Pernicious Anemia.

Dr. Willis C. Campbell, Memphis, Tenn., The Process of Bone Growth and Repair; Arthroplasty.

Dr. John Oliver McReynolds, Dallas, Texas, What the General Practitioner Should Know About Ophthalmology; Differential Diagnosis of Intra-Ocular Affections and Practical Points in Their Management.

Dr. Alfred I. Folsom, Dallas, Texas, Prostatic Resection; Bladder Irritation in Women.

Dr. Frank H. Lahey, Boston, Diagnosis and Management of Peptic Ulcer; Carcinoma of the Colon.

Dr. Benjamin H. Orndoff, Chicago, The State of the Breast Before It Becomes Cancerous; Cancer of the Breast and Its Management.

Dr. Foster Kennedy, New York, Acute Head Injuries; Necrosis Following Injury.

Dr. William H. Guy, Pittsburgh, Management of Syphilis in General Practice; Drug Eruptions.

Dr. Albert Graeme Mitchell, Cincinnati, Tonsillectomy—Its Indications; Nephritis and Nephrosis.

NEW JERSEY

Anniversary of Preventorium.—The twenty-fifth anniversary of the establishment of the Tuberculosis Preventorium for Children at Farmingdale was observed at a luncheon, October 6. Speakers included Dr. Herbert R. Edwards, chief of the tuberculosis division of the New York City Department of Health, and Dr. Charles Hendee Smith, New York.

NEW YORK

Society News.—At the annual meeting of the eighth district branch of the Medical Society of the State of New York in Jamestown, October 4, speakers were: Drs. Joseph S. Lawrence, Albany, on "Successful Application of the Welfare Law"; George W. Cottis, Jamestown, "Nondrainage Treatment of Peritonitis"; Wallace B. Hamby, Buffalo, "Development and Present Status of Neurosurgery," and Malcolm H. V. Cameron, Toronto, Ont., "Gallbladder Disease." Dr. Arthur J. Bedell, Albany, president of the state medical society, also made an address.——Dr. Frank M. Dyer, Binghamton, addressed the Broome County Medical Society in Binghamton, October 9, on "The Tragedy of Appendicitis—The Other Side."——Dr. Anthony Bassler, New York, addressed the Dutchess-Putnam Counties Medical Society, Poughkeepsie, October 10, on chronic colitis.——Dr. Jean A. Aubry, Rochester, addressed the Ontario County Medical Society, Geneva, October 9, on "The Puerperium, with Special Reference to Prenatal and Postnatal Care."

New York City

Malnutrition Among School Children Declines.—A recent analysis of results of medical examinations of school children in the first half of 1934 compared with similar figures for previous years shows a distinct decline in malnutrition, the *Quarterly Bulletin* of the New York City Department of Health reports. Despite the fact that no satisfactory standard of measuring malnutrition has been devised, the fact that the examinations were made by practically the same inspectors over a period of years makes it likely that the changes noted are significant, the report says. For the first half of 1934 the percentage of children considered malnourished was 17.7. For 1933 the percentage was 19.9 and for 1932, 21.1. In 1929 the percentage was only 13.4.

Diseases Under Investigation at Rockefeller Institute.—Cases that bear on a limited number of subjects chosen for investigation may be referred to the Hospital of the Rockefeller Institute for Medical Research by physicians who are willing to cooperate, according to an announcement. The following diseases are now under investigation: acute lobar pneumonia and bronchopneumonia in adults; measles in the pre-eruptive stage, chickenpox; encephalitis following measles, vaccinia, chickenpox, whooping cough or common cold; rheumatic fever in any early acute form and sore throat in rheumatic subjects; advanced heart disease, especially in older persons; nephritis in initial acute stages, nephrosis, arteriosclerotic nephritis, essential hypertension; aplastic, idiopathic pernicious or severe microcytic anemia; sprue or severe glossitis and stomatitis without anemia. Physicians should communicate by telephone or by personal application before sending patients. No charge is made for any service.

NORTH CAROLINA

Personal.—Dr. Robert S. McGeachey, Greenville, health officer of Pitt County for four years, has been appointed to a similar position in Halifax County.——Dr. Clarence L. Guyton Jr. has been made head of the Ellen Fitzgerald Hospital, Monroe, succeeding the late Dr. Alto F. Mahoney.——Two new members have been added to the faculty of the University of North Carolina Medical School this year. Dr. Augustus S. Rose, formerly of the faculty of Harvard Medical School, will be associate professor of anatomy, and Dr. Walter Reece Berryhill, formerly of Western Reserve University School of Medicine, associate professor of pathology and physical diagnosis. Dr. Berryhill will also be chief of the medical staff of the university infirmary.

OHIO

Health Service at State University.—Reorganization of the medical and health service at Ohio State University, Columbus, with Dr. John W. Wilce as director, was recently announced. Dr. Wilce will hold the rank of professor of medicine in the medical school. Other members of the staff and their rankings on the medical faculty are Drs. Morse F. Osborn, associate professor; James A. Beer, Shirley Armstrong and Charlotte Winnemore, assistant professors, and James M. Foley, instructor.

Institute for Graduate Instruction.—Through the interest of Toledo alumni of the old Toledo Medical College, which was closed in 1914, it has been decided to use a fund set aside at that time by the retiring board of trustees to establish the Medical Institute of the University of Toledo for graduate medical education. The first annual presentation will be given November 2 at an all day meeting in the Doermann Auditorium, University of Toledo, at which Drs. Lawrason Brown, Saranac Lake, N. Y., and Evarts A. Graham, St. Louis, will lecture on medical and surgical aspects, respectively, of diagnosis and treatment of pulmonary tuberculosis. The Toledo Academy of Medicine will meet with the institute for the closing evening lecture.

Personal.—Dr. Carl L. Spohr has been made acting head of the department of pathology, Ohio State University School of Medicine, Columbus, succeeding the late Dr. Ernest Scott.——Dr. John Uri Lloyd, Cincinnati, received the Procter International Award of the Philadelphia College of Pharmacy and Science at a ceremony, October 9, in recognition of contributions to pharmacy. The award, a suitably inscribed gold watch, is named in honor of William Procter Jr. (1817-1874), for many years a member of the faculty of the college.——Dr. T. Addison McCann, Dayton, was guest of honor at a dinner given by physicians of Dayton, September 25, at the Hotel Van Cleve, celebrating his seventy-fifth birthday.——Dr. James J. Marek, Cleveland, won the annual golf tournament of the Ohio State Medical Association in Columbus, October 3, with a score of 157 for thirty-six holes.——Dr. Abram L. Van Horn, Cleveland, has been appointed chief of the bureau of child hygiene of the state department of health, Columbus.

OKLAHOMA

Society News.—Speakers at the quarterly meeting of the Western Oklahoma Medical Society in Clinton, September 16, were Drs. Wallace J. Masters, on preventive pediatrics; Milton H. Glover, diagnosis and treatment of fractures, and Orman T. Kimbrough, urology. All are from Wichita Falls, Texas.——Drs. McClain Rogers and Roger L. Hickman, Clinton, addressed the Woods-Alfalfa Counties Medical Society, Alva, September 25, on disease of the gallbladder and tuberculosis, respectively.——Drs. Alfred L. Seal, Concho, and Myron S. Gregory, Oklahoma City, addressed the quarterly meeting of the Canadian County Medical Society, El Reno, October 6, on undulant fever and on paranoia, respectively.——At a meeting of the Jackson County Medical Society at Altus, June 22, speakers were Drs. William G. Husband, Hollis; Emory S. Crow, Olustee; John M. Allgood and Raymond H. Fox, both of Altus, on various aspects of appendicitis.

PENNSYLVANIA

State Medical Election.—Dr. Alexander H. Colwell, Pittsburgh, was named president-elect of the Medical Society of the State of Pennsylvania at the annual session in Wilkes-Barre, October 3. Vice presidents elected are Drs. Peter P. Mayock, Wilkes-Barre; William G. Tillman, Easton; Thomas St. Clair, Latrobe, and Ward O. Wilson, Clearfield. Dr. Moses Behrend, Philadelphia, was installed as president and Dr. Walter F. Donaldson, Harrisburg, was elected secretary for the seventeenth year. The 1935 meeting will be held in Harrisburg.

District Meeting.—At the annual meeting of the second councilor district of the Medical Society of the State of Pennsylvania, three physicians who had been in practice for fifty years received testimonials from the state society, Drs. Alice Rogers Easby, Media; Robert G. Gamble, Haverford, and John K. Evans, Malvern. Among speakers at the meeting were Drs. John O. Bower, Philadelphia, on reduction of mortality from appendicitis; James W. McConnell, Philadelphia, on mental hygiene, and Leonard G. Rowntree, Philadelphia, on arthritis and its treatment.

Philadelphia

Weir Mitchell Oration.—Dr. Stephen W. Ranson, professor of neurology, Northwestern University Medical School, Chicago, delivered the S. Weir Mitchell Oration of the College of Physicians of Philadelphia, October 17, on "The Hypothalamus: Its Significance for Visceral Innervation and Emotional Expression."

Personal.—Dr. Moses Behrend, president of the Medical Society of the State of Pennsylvania, was the guest of honor at a dinner given by the staffs of Mount Sinai and Jewish hospitals, at the Locust Club, October 17.——Dr. Charles W. Burr has given a laboratory for biology to the Episcopal School, of which he is an alumnus and a trustee.——Dr. Edward L. Bauer has been appointed physician to Girard College to succeed Dr. Frank L. Greenewalt, who retired after thirty years'

service.—Dr. Thomas C. Stellwagen Jr., professor of genito-urinary surgery, delivered the introductory lecture at the opening session of Jefferson Medical College, September 24, on "Cooperation and Loyalty."

Pittsburgh

Society News.—Speakers at the monthly meeting of the Allegheny County Medical Society, October 16, were Drs. William A. Bradshaw, on malta fever; Joseph S. Baird, preventive treatment of measles, and Ellen J. Patterson, foreign bodies in food and air passages. The motion picture showing the work of the American Medical Association at headquarters in Chicago was shown by Dr. Austin A. Hayden, Chicago, secretary of the Board of Trustees.——Dr. George A. Holliday addressed the Pittsburgh Urological Association, October 8, on lymphogranuloma inguinale.

SOUTH DAKOTA

Society News.—Dr. Elexious T. Bell, Minneapolis, addressed the Seventh District Medical Society, Sioux Falls, September 11, on diseases of the kidney.——A symposium on cancer of the breast formed the program of the Black Hills Medical Society recently; speakers included Drs. Charles W. Hargens and Charles F. Morsman, both of Hot Springs.

WASHINGTON

Health Survey in Tacoma.—Carl E. Buck, Dr.P.H., field representative of the American Public Health Association, made a ten day survey of public health facilities in Tacoma in September. The survey was an award by the association to the city for a report made some months ago from which it was decided that Tacoma showed the greatest promise of making use of a survey by an expert in connection with the health contest sponsored by the U. S. Chamber of Commerce.

GENERAL

Changes in Status of Licensure.—At a recent meeting of the California Board of Medical Examiners, the following action was taken:

Dr. Egbert G. Johnson, Los Angeles, placed on probation for three years after a hearing of charges of alleged deceptive advertising.

Dr. Edward S. Moulton, Corning, placed on probation for five years without narcotic privileges based on the record of his conviction of violating the state poison law.

Branch Urologic Society Organized.—The Southeastern Branch Society of the American Urological Association was recently organized with the following officers: Drs. Montague L. Boyd, president; Edgar G. Ballenger, president-elect, and Earl H. Floyd, secretary; all are of Atlanta. Membership in the branch organization is open to physicians living in Alabama, Georgia, Florida, Louisiana, North Carolina, South Carolina and Tennessee. The first meeting will be held in Atlanta, December 7-8.

Automobile Fatalities in Four Weeks.—The bureau of the census, U. S. Department of Commerce, announced that eighty-six large cities in the United States reported 733 deaths from automobile accidents during the four weeks ended September 29, as compared with 708 deaths during the four weeks ended Sept. 30, 1933. Of the total number 536 occurred within corporate limits of cities. For the fifty-two week periods ended Sept. 29, 1934, and Sept. 30, 1933, the totals for all cities were respectively 8,691 and 8,005, which indicate a recent rate of 23.3 per hundred thousand population as against an earlier rate of 21.4.

Association for Cancer Research.—The twenty-eighth meeting of the American Association for Cancer Research will be held November 8 in New York at Memorial Hospital. The program is as follows:

Dr. James Ewing, New York, Fascial Sarcoma; Intermuscular Liposarcoma.

Dr. Leila Charlton Knox, New York, Synovial Sarcoma.

Dr. Alphonse A. Thibaudeau, Buffalo, Myxosarcoma.

Dr. George H. Semken, New York, Surgical Treatment of Sarcoma of the Soft Parts.

Dr. Fred W. Stewart, New York, Neurosarcoma.

Dr. Joseph McFarland, Philadelphia, Malignant Myoma.

Dr. Traian Leucutia, Detroit, Radiotherapy of Sarcoma of the Soft Parts.

Dr. George Miller MacKee, New York, Idiopathic Multiple Hemorrhagic Sarcoma (Kaposi).

Dermatology Board Examination Canceled.—The American Board of Dermatology and Syphilology has postponed the meeting which was to have been held in San Antonio, November 13-16, at the time of the meeting of the Southern Medical Association until the Atlantic City session of the American Medical Association in June 1935. The oral examination for applicants in groups A and B will be held June 10 in New York City. The written examination for group B will be held, April 29, 1935, in various cities throughout the county. All applications for this examination should be filed in the office of the secretary before March 10, 1935. Application blanks and booklets of information may be obtained from the secretary, Dr. C. Guy Lane, 416 Marlborough Street, Boston.

Society News.—Dr. Lewis J. Moorman, Oklahoma City, was elected president of the Southern Tuberculosis Conference and Dr. Jesse B. Naive, Knoxville, Tenn., president of the Southern Sanatorium Association, at the annual joint meeting in Knoxville, October 11.——Dr. James C. Braswell, Tulsa, Okla., was elected president of the Aero Medical Association at the annual session in Washington, D. C., September 30. Regional vice presidents elected were Drs. Albert M. Mitchell, Terre Haute, Ind.; Francis C. Hertzog, Long Beach, Calif.; John R. Poppen, U. S. N., on duty at Washington, and Bernard L. Jarman, Washington, examiner for the Bureau of Air Commerce. Dr. David S. Brachman, Detroit, was reelected secretary.——Dr. Peer P. Johnson, Beverly, Mass., was elected president of the New England Surgical Society at the annual meeting in Burlington, Vt., September 29. Other officers elected were Drs. Channing C. Simmons, Boston, vice president, and John M. Birnie, Springfield, secretary, reelected. The 1935 meeting will be held in Manchester, N. H.

The 1934 Christmas Seal.—The National Tuberculosis Association commemorates with this year's Christmas seal the fiftieth anniversary of the building of the cottage that became the nucleus of Trudeau Sanatorium, Saranac Lake, N. Y. In 1882, on the publication of Koch's discovery of the tubercle bacillus, Dr. Trudeau began experimental work to prove Koch's work for himself, making his own apparatus. Dr. Trudeau lived till Nov. 15, 1915. He was the first president of the National Tuberculosis Association, in 1904. On the eighty-sixth anniversary of Dr. Trudeau's birth, October 5, officials of the New York state committee on tuberculosis and public health presented to the sanatorium a picture of the cottage, which is now used as a museum, in a ceremony attended by physicians from all parts of the state.

ALASKA

Dr. Murray Made Medical Director of Indian Service.—Dr. Vance B. Murray, surgeon, U. S. Public Health Service, has been detailed for duty as medical director for the Alaskan Medical Service under the office of Indian affairs, department of the interior. Dr. Murray, a graduate of Columbia University College of Physicians and Surgeons, was commissioned in the service in July, 1916. Recently he has been medical director of district number 2 of the Indian Service in Spokane, Wash.

PHILIPPINE ISLANDS

Society News.—Dr. Jose O. Nolasco presented a paper on "Perineural Injections with Antileprotic Drugs" and Drs. Alejandro Laureola and Casimiro B. Lara reported a case of agranulocytic angina at a meeting of the Culion Medical Society, July 26.——At a meeting of the Manila Medical Society, August 14, a symposium on food poisoning was presented by the following physicians: Drs. Jose Albert, Moises B. Abad, Luis Guerrero and Patricio Ignacio, the clinical point of view: Eugenio Hernando, epidemiology; Jose V. Punsalano, Trinidad P. F. Banuelos and Mariano Basaca, laboratory point of view; Liborio Gomez, Sixto de los Angeles and Pablo Anzures, pathology.

CANADA

Society News.—Dr. J. Arthur Jarry, Montreal, was elected president of the Congress of French Speaking Physicians of North America at the recent session in Quebec, and Dr. Amédée Granger, New Orleans, vice president. The next meeting will be in Montreal in 1936.——Dr. Gregoire F. Amyot, Vancouver, addressed the Vancouver Medical Association, Vancouver, B. C., October 2, on "Infection, Its Spread and Control." Dr. Clarence E. Brown will speak, November 6, on "Secretory Disturbances of the Stomach."

Changes in Provincial Hospitals.—Dr. George H. Stevenson, superintendent of the Ontario Hospital, Whitby, Ont., has been appointed superintendent of the Ontario Hospital, London, to succeed the late Dr. Fulton S. Vrooman. Dr. Stevenson will also be professor of psychiatry at the University of Western Ontario School of Medicine. Dr. Donald R. Fletcher, now at the Ontario Hospital, Brockville, succeeds Dr. Stevenson; Dr. Charles S. Tennant, superintendent at the provincial hospital at Woodstock, goes to Brockville; Dr. Daniel O. Lynch, superintendent at Penetanguishene, is transferred to

Woodstock, and Dr. Claude A. McClenahan, who has been acting superintendent at London, becomes superintendent at Penetanguishene.

University News.—Dr. Archibald B. Macallum has resigned after many years' service as dean of the University of Western Ontario Faculty of Medicine, London. Dr. Frederick J. H. Campbell, associate professor of medicine, is acting dean.—— Dr. Brandur J. Brandson recently retired as professor of surgery at the University of Manitoba Faculty of Medicine, Winnipeg. He was the guest of honor at a dinner given by the honorary attending staff of the Winnipeg General Hospital, August 30.

LATIN AMERICA

Pan American Congress on Tuberculosis.—The Latin American Union of Tuberculosis Societies has organized the third Pan American Congress of Tuberculosis to be held in Montevideo, Uruguay, December 16-19. Five subjects have been chosen for discussion as follows: economic bases of the fight against tuberculosis in South America; pathogenesis and treatment of tuberculous empyema; medicosurgical collapse therapy of pulmonary tuberculosis; review of therapeutics of tuberculosis in Chile, and radiologic aspects of pulmonary tuberculosis.

Government Services

Testing Cattle for Bang's Disease

The testing of cattle for Bang's disease, or "contagious abortion," has been begun in twenty-two states under a federal emergency appropriation, the U. S. department of agriculture announces. Preliminary work indicates that about 15 per cent of the cattle will react to the agglutination test. Farmers in states cooperating in the campaign may sign agreements for testing in which they agree to market reacting animals for slaughter to maintain sanitary safeguards; to safeguard the herd in purchasing new animals and to retest at intervals. The government will pay indemnities up to $20 for grade cattle and $50 for pure bred registered cattle.

Gift for Medical Research

Associates of the late Dr. Edgar Orrin Crossman, medical director of the Veterans' Bureau, have presented a fund of $900 to the U. S. Public Health Service for study, investigation and research into fundamental problems of disease, it was announced October 2. The gift, which was accepted by the Secretary of the Treasury on behalf of the government, was made as a tribute to Dr. Crossman's work in the care and treatment of former members of the naval and military forces. Dr. Crossman died in 1929.

Report on the Civilian Conservation Corps

President Roosevelt, in acknowledging a recent report from Robert Fechner, director of emergency conservation work, on the present status of the Civilian Conservation Corps, indicated that he will continue this project, in which 1,626 physicians have been engaged. As of September 30, there were in the camps 1,089 physicians who are members of the Medical Reserve Corps of the U. S. Army. In addition, 325 are employed on a full time contract basis; 84 on part time contracts; 37 medical officers of the regular army, and 91 medical officers of the Navy. It is estimated that total annual salaries of these physicians amounts to about $4,500,000. A total of 780,000 men has been enrolled for various periods, the maximum number at any one time being 390,000. The report states that the health of the men is rigorously guarded and that their physical and mental condition is much improved. A check of 15,000 men picked at random revealed an average gain in weight of seven pounds per man. The men have been paid $136,000,000, of which $113,000,000 has been sent to their families. Men are now leaving the corps at a rate of about 10,000 per month, the report stated, to accept private employment or for other reasons. At the beginning of the fourth six months' period, October 1, the War Department was to enroll 100,000 additional men to fill vacancies caused by discharges during the previous six months. Officials of the forest service of the department of agriculture report that forestry programs have been advanced from five to fifteen years by the work of the conservation corps, which includes forest fire protection, preservation of forest covers on watersheds, protection against plant diseases, prevention of soil erosion, flood control and improvement of national parks.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 29, 1934.

A Test of a Vegetarian Diet

The efficiency and performance of a cyclist on a vegetarian diet have been tested at the Institute of Physiology, Glasgow University, in order to see how the strict omission of animal food affected the result. It is well known that athletes who specialize in contests demanding great endurance lay stress on an ample supply of protein in the diet. The persons who call themselves vegetarians usually take milk, eggs and cheese to secure this supply. In the present tests the subject was a man of 48 who had lived on a vegetarian diet for twenty-three years. For many years he had secured numerous prizes and records and was one of the British competitors at the Stockholm Olympics in 1912 and at Antwerp in 1920. He was put on a strictly rationed diet, which was varied in the course of the experiments as regards the source and amount of protein. He pedaled a stationary bicycle almost continuously for more than eight hours daily and each dietary experiment lasted a week. The work done was measured by special devices and an electrical break maintained the sort of resistance that would be experienced on a good level road. The speed was checked at frequent intervals during the tests, and determinations of the metabolism were made.

Four standard diets were employed, in which the protein varied from 39 to more than 200 Gm. derived from strictly vegetable sources. Actually the attempt to secure a really high protein diet from such sources was a failure, owing to the digestive troubles provoked, and this experiment showed the poorest performance of all. A fifth experiment was carried out with no restrictions and the subject chose the sort of food he would take in road racing. This included 5 pints of milk, eight eggs and 1 ounce of butter, in addition to strictly vegetable foods. This diet gave the best athletic performance of the series, with the highest speed records, although the "gross efficiency" (energy produced per unit of food energy) was less. The conclusion is that in prolonged hard muscular exercise the large supply of energy required can best be obtained in small bulk and in palatable form from protein-rich foods of animal origin.

Mental Health Services

In their report for 1933 the Board of Control (the official body which controls the mental health administration) states that satisfactory progress has been made in the development of the mental health service in spite of financial restrictions. The important advance of recent years is the development of voluntary treatment, in contrast to the previous certification and incarceration. The number of voluntary admissions to public mental hospitals shows a steady increase. There has also been a gratifying increase in the number of outpatient clinics, from which an improved voluntary admission rate may be expected. The board is convinced that outpatient work in cooperation with the local physicians is not only the surest way to encourage early inpatient treatment where it is needed but saves many from needing inpatient treatment at all.

During the year the number of persons suffering from mental disorder—voluntary, temporary and certified—in England and Wales was 150,266, an increase of 1,491 over the previous year. The average annual increase for the five years ended 1933 was 1,636. This increase has no necessary connection with the incidence of mental disorders in the general population. Other points brought out in the report are the importance of early treatment, the unhygienic practice still in vogue in certain hos-

pitals of allowing male patients to wear the same underclothing day and night, the suggestion that an interchange of troublesome patients between neighboring hospitals might often be in the interest of the patient and the hospital, and the desirability of the avoidance of printed forms in the replies sent by the authorities of the hospitals to inquiries from relatives. The total number of mentally defective patients in England and Wales in institutions and under guardianship at the end of 1933 was 38,843; in addition there were 31,921 under statutory supervision. The great value of scouting and guiding in the training of mental defectives is emphasized and tribute is paid to the authorities responsible for the control of this movement for their help in devising special tests suitable for mental defectives. The board observes that, apart from their recreational and disciplinary value, scouting and guiding help to vary the monotony of institutional life, while at the same time they increase self confidence and self respect and foster the sense of independence, which is so sadly lacking in most defectives.

Voluntary and Municipal Hospitals

As pointed out previously, the rise of the municipal hospital (supported by taxes) is a phenomenon of recent years. This has not been accompanied by any decline in the hospitals supported by voluntary contributions, which have long been a feature of English life. At the fourth annual conference of the British Hospitals Contributory Schemes Association, held at Bristol, a discussion took place on the relation of voluntary to municipal hospitals. Formerly the voluntary hospitals were purely charitable institutions, supported by philanthropic persons for the benefit of the poor. But the great financial changes of recent years, in the form of increased cost and diminished resources of those who used to give, have rendered charitable support inadequate. Resort has had to be made to provident schemes. These have been successful and there are now about four million contributors. Sir Arthur J. Atkinson, chairman of the Hull Voluntary Hospitals Council, read a paper in which he stated that a financial expert had told him that it would pay a public authority to subscribe to almost any extent to the support of a voluntary hospital to prevent its extinction, for this would mean a great increase of the taxes. But there was a not unimportant school of political thought which aimed at a state-regulated hospital service for all maintained entirely by taxation. If the voluntary hospitals met what was called "their inevitable fate," with their extinction would also disappear the contributory scheme movement and that amazing support which they had always received in the British Isles and which in 1932 amounted to $76,000,000. In the discussion it was pointed out that local authorities had to build hospitals because of the gaps that existed. An adequate hospital service within reasonable distance of the homes of the people was necessary. Dr. Peter Macdonald, representing the British Medical Association, referred to the promotion of a scheme by his association to do for middle class people what the contributory schemes were doing for the working class. He was enthusiastically in favor of voluntary hospitals and did not think that, with certain exceptions, the municipal hospitals were as efficient.

The Evils of a Smoky Atmosphere

In his presidential address to the National Smoke Abatement Society, Dr. H. A. des Voeux asked whether the great increase that has recently been observed in the cases of cancer of the lung could be attributed to a smoke-laden atmosphere. It was known that tar, which is derived from coal, could produce cancer, and the substance that was responsible had been isolated by the chemists. According to evidence from Glasgow and Manchester, supported by the reports of nearly every health officer, fogs were prolific causes of bronchitis and consequent heart disease, which caused 37 per cent of the deaths in this country. Darkness from the blotting out of sunlight by smoke was one of the chief causes of rickets, which crippled children. In these conditions also lay the ancillary cause of tuberculosis, which was almost impossible to cure without the assistance of clean air and sunshine. Dr. des Voeux commented on the futility of sanatorium treatment. He also spoke of the waste of fuel—the throwing into the atmosphere daily of tar, sulphur and oil to destroy buildings, clothes, books and furniture.

Dr. J. S. Owens, superintendent of observations for the Committee for the Investigation of Atmospheric Pollution, Department of Scientific and Industrial Research, read a paper on "The Measurement of Atmospheric Pollution." He said that ninety-six stations in Great Britain, where atmospheric pollution was measured, recorded an average fall of solid matter of 250 tons a square mile in 1933 and 240 tons in 1934. Mr. O. Cochran, secretary of the Scottish Flying Club, in a joint paper with Mr. W. J. Grassie, meteorological officer, Paisley, said that smoke was carried long distances in quantities sufficient to affect visibility. On many occasions, flying at Renfrew had been brought to a standstill by the smoke haze drifting from Glasgow. R. B. Smith, acting president of the Scottish Branch of the National Smoke Abatement Society, stated that in the United Kingdom nearly 250,000 tons of soot escaped into and polluted the atmosphere every year from domestic fireplaces alone. The only way to stop smoke was to stop the burning of raw coal and provide a better and cheaper means of heating.

Dr. J. J. Jervis, health officer of Leeds, said that the slum and the smoky coal fire were relics of a bygone and visionless age. England owed its reputation for rickety children more to lack of light than to anything else. The soot and grit in the atmosphere inactivated the ultraviolet rays. A feature of slum dwellings that transcended all others was the prodigal way in which coal was used. Dr. Jervis pleaded for the abolition of the smoky coal fire.

Another Death Due to Cinchophen

Cinchophen has been extensively advertised and sold in this country, under the trade name of "Atophan," as a remedy for gout and rheumatism. For some years the liability to the production of toxic jaundice, sometimes fatal, has been noticed. The intermittent administration of the drug, to avoid dangerous accumulation, is recommended. But it has been shown that, even when this method has been followed and only small quantities taken, fatalities still occur. However, this dangerous drug is still used and deaths continue to be recorded. The latest was the subject of an inquest at Birmingham. An electrician, aged 31, was prescribed Atophan for sciatica and gout. Jaundice developed and he died. The necropsy showed acute yellow atrophy of the liver. His physician said that he had never known ill effects from the use of the drug. Dr. K. Douglas Wilkinson, professor of pharmacology, Birmingham University, gave evidence. He used the drug fairly frequently, but with considerable caution. There had been more than fifty recorded deaths, but there must have been more cases. He considered that the drug should be scheduled as a poison. The coroner said that a warning ought to be issued and that the drug should not be used under any circumstances except under the direct supervision of a physician. At present any one could obtain as much as he wanted from pharmacists.

A National Scheme of Dental Aid

A conference of representatives of charitable institutions interested in the provision of dental treatment has been held in London. It was decided to formulate a scheme for coordinating efforts in providing dental aid to poorer people, estimated

to number 6,000,000, at present not under the National Health Insurance Acts. The conference was convened by the Ivory Cross National Dental Aid Fund. Its object is to unite in a single cooperating body all the dental aid societies, with the object of raising a national fund which will place dental treatment at the disposal of the poor throughout England. Secondly, it is proposed to initiate a campaign of instruction and education in order to teach what the middle and upper classes realize —that care of the teeth is of the first importance in the preservation of health. Bad teeth are stated to be a menace to health, longevity and digestion, as they are a primary channel for many diseases. The report of the school medical officer for London shows a definite falling off in the number of children given dental treatment in the elementary schools. This is due not to any failure on the part of the dentist or the public authorities but to apathy of the parents. Turning to the financial aspect of the question, the sum available per head for dental treatment among the 15 million insured workers is only 66 cents, which is one fourth of the expenditure on medical treatment and about half the annual cost of drugs and bottles. Yet people with an income of $2,500 and upward spend, on the average, three times as much on the care of their teeth as on medical care.

PARIS

(From Our Regular Correspondent)

Sept. 19, 1934.

Recent Complaints About the Quality of Bread

For years, controversies have developed among the agriculturists, the millers, the bakers and the physicians over the quality of bread. Learning all the manipulations to which bread is subjected, the public loses its appetite for bread, which aggravates the agricultural crisis. The main trouble is that the farmer produces too much wheat of mediocre quality. The farmers everywhere have sown wheat of an inferior species, which yields a large number of grains but which contains a low percentage of gluten and does not make good bread. Hence, some hard wheat rich in gluten, such as Manitoba wheat, must be imported and added to it. The demand for this inferior wheat is small. A law requires the miller to pay for the wheat the code price of 115 francs per hundredweight, whereas in foreign countries the price is about 55 francs. To maintain this artificial price, a prohibitive duty has been placed on imported wheat. But no one buys this wheat at the code price. The miller gets around the law by receiving as a present a certain number of supplementary sacks of wheat not mentioned in his bill. But, since the miller was able to produce only inferior flour with this wheat, he has sought to improve it artificially, and a large number of chemical products are sold for that purpose. The flour is whitened with chlorine products and benzoyl peroxide. But the ferments are thereby destroyed and the live yeasts can no longer raise the dough properly. They are therefore replaced by "chemical yeasts" with a base of ammonium persulphate, potassium bromate and magnesium carbonate, and chemical glutens with a base of ammonium persulphate and ammonium phosphate have been introduced. Dough thus prepared rises more rapidly and allows the addition of a larger quantity of water, thus reducing the amount of flour required. This constitutes a great saving for the miller and the baker but brings no profit to the agriculturist whose protection was sought. Such bread is doughy when fresh, and when it gets old it is as hard as cement. The rural population, in the habit of provoding a supply of bread sufficient to last several days, refuses to accept it and hence eats more meat and drinks more alcoholic beverages. This poor bread has caused the number of persons with dyspepsia to increase throughout France. The French have always been a people that consumed much bread, and French bread used to be regarded as the best in the world. The Academy of Medicine is aroused over the matter. It has condemned, in a sharp note, the use of all these ingredients, and demands a return to the normal bread, rich in gluten. The minister dominated by politics, and desirous, above all, of protecting the agriculturists, who constitute a large body of voters, responded in such a manner as to aggravate the situation. He modified the official regulations in regard to bolting so that only 70 per cent instead of 75 per cent of the wheat grain can be ultilized for flour, which makes it necessary to employ more wheat for the same quantity of bread but diminishes, at the same time, the quantity of gluten in the flour, a larger part of the gluten than before remaining in the bran. The animals that eat the bran gain more therefore, from the standpoint of health, than does man. In addition, the minister has prohibited the introduction of a small quantity of bean flour that has commonly been added to wheat flour, which increased somewhat the gluten content of bread and kept it fresh longer. The addition of bean flour was the only form of adulteration that was unobjectionable. The agriculturists are so powerful politically that they have brought about also a limitation of the importation of rice into France under the pretext that it might compete with wheat, and already grave difficulties have arisen with the French colonies of the Far East, which depend chiefly on the cultivation of rice for their living.

Mitogenetic Radiations

Mitogenetic radiations were the subject of a recent research by Marinesco, Jonesco-Sisesti and Sager, the results of which they presented to the Academy of Medicine. It is alleged that all living beings, both animal and vegetable, emit radiations that will leave an impression on a photographic plate wrapped in black paper, as was demonstrated some time ago by Commandant Darget, and this radiation, which varies with the individual, can be measured as one measures radioactivity by ionization of the air between two armatures in the conductors of which an electric current is induced. Gourvitch proved the existence of a transmission, through the roots of vegetables, of an ultraviolet radiation that promoted multiplication of cells. That is what is called mitogenetic radiations. Marinesco and his collaborators measured the mitogenetic radiations of the blood by two different methods, which gave similar results. It appears that this radioactive potency varies in normal subjects with the age, being at its maximum in the child and diminishing steadily, becoming almost nil in aged persons. It also varies greatly with various types of disease, increasing in some and diminishing in others. Marinesco noted that in a divided nerve the central end is more radioactive than the peripheral end, which he explains by saying that the oxidizing process is more marked in the central end owing to a special influx from the nerve centers. It has been found that this power is increased in the rabbit by intense illumination of the fundus of the eye. These experiments will be continued.

Professor Léon Bernard

The death of Prof. Léon Bernard, at the age of 62, from a septicemia resulting from the opening of a simple dental abscess, is announced. Professor Bernard held a high place in French medicine owing to the stimulus that he had given to the organization of the crusade against tuberculosis. His career had been brilliant. While associate professor at the Faculté de médecine and physician to the "hôpitaux de Paris," he became the first appointee to a special chair for the study of tuberculosis. In the Hôpital Laënnec he had organized the Léon Bourgeois dispensary for the detection of tuberculous persons. He was vice president of the Conseil consultatif d'hygiène de France. He was also the permanent representative of France to the health commission of the League of Nations. To the tribune of the Academy of Medicine he presented numerous communications.

ITALY

(From Our Regular Correspondent)

July 31, 1934.

Is There a Filtrable Tuberculosis Virus?

A convention on tuberculosis was recently held in Pistoia in Tuscany. Silvestrini, medical clinician of Perugia, in discussing certain forms of the virus, said that it may assume an actinomycotic, a streptococcic, a coccic or a bacillary form. The existence of a granular form, beyond the limits of visibility, cannot be excluded. Depending on the form it assumes, the tuberculous virus provokes diverse reactions in the tissues. Against the denial of the existence of filtrable portions in materials containing tuberculous virus, it is an established fact that something passes into the filtrates which is capable of producing in guinea-pigs a disease that is not typical tuberculosis but tuberculous disease without tubercle bacilli. This condition can be attributed to non-acid-resistant, non-gram-resistant filtrate particles that lie beyond the limit of visibility. These particles may reproduce themselves for a time in the ultravisible form, but, as they originated from bacilli and acid-resistant granules, they may return to these forms. To admit the existence of this filtrable virus is in harmony with the accepted views of the morphology of Mycobacterium tuberculosis and, on the other hand, takes account of observed facts in the field of pathology.

Petragnani, director of the Hygienic Institute of the University of Siena, spoke on methods for studying the tuberculous virus. After many years of research, he was inclined to speak conservatively. It is not known what is the true clinical and pathologic picture caused by the ultravirus, although death from cachexia and polyadenia may be an occasional observation. The results obtained by various investigators are not constant and are often contradictory. The existence of a filtrable type of virus has been, in recent years, denied by an ever increasing number of investigators.

Salvioli, director of the Pediatric Clinic in Siena, reported on his studies on the Petragnani anatuberculin in vaccinations on children. In the goutte de lait at Siena the mortality in the annexes, during the four years preceding 1933, was 33 per cent; in 1933, after the application of antituberculosis vaccination, the mortality was 14 per cent.

Fiore, director of the Pediatric Clinic in Pisa, affirmed that today tuberculous infection is not conceived as due solely to Koch's bacillus but as due to a complex virus, which, beginning with the granular and bacillary forms with varying cultural and pathogenic behavior, develops into the ordinary Koch bacillus. The tuberculous protogens show a marked affinity for the lymphatic system, provoke a disease susceptible of cure, do not necessarily elicit sensitiveness to tuberculin, and may develop an immunizing capacity toward the action of the Koch bacillus. To the infection resulting from tuberculous protogens may be assigned the term "pretuberculosis," but designating, according to the speaker, a well defined clinical entity; namely, the complex of all those manifestations that are evidenced in children through the direct action of the protogens. The speaker is convinced that immunity originates from pretuberculosis.

Raspi, of the Pediatric Clinic in Pisa, considered the possibility of increasing the virulence of the tuberculous ultravirus, by employing filtrates of twenty-day cultures in a Besredka fluid culture medium. If suspensions of inert substances capable of irritating the serosa and of provoking an active leukocytic exudation are previously injected into the peritoneum, the successive inoculation into the peritoneum of the filtrate causes in a more evident manner than in the controls the development of a morbid type characterized by glandular hyperplasia with a very rapid course. Raspi provoked a typical tuberculous infection in guinea-pigs; then, by injecting the filtrate of the spleen and the lymph glands of such tuberculous guinea-pigs into other guinea-pigs he secured the experimental syndrome of the ultravirus. The fourth passage of glandular fluid into a tuberculous guinea-pig caused the rapid evolution of a typical Koch phenomenon.

As a result of successive experiments, the speakers are of the opinion that, in addition to the ultravirus, there are non-filtrable protogens in the cerebrospinal fluid of meningitis patients, which are capable of provoking the well known morbid picture due to the filtrable virus.

Gentili discussed the value of allergy in the diagnosis of tuberculous infections in children. Admitting that clinical manifestations of the ultravirus itself and of tuberculous protogens in a wider sense may be observed, he concluded that the tuberculin tests are losing ground as a diagnostic method.

The Crusade Against Malaria

The government recently experimented in the village of Ardea, in connection with the crusade against malaria. The village of Ardea was selected because it presented various features useful for the test: a small population (700 inhabitants), which was easily supervised; an abundance of stagnant water; houses without protecting screens; the collection of houses (*caseggiato*) located on a hill and hence isolated. The experiment was begun in May 1932. The choice of this village was based on the observation that pigpens attract, more than do the homes, the Anopheles mosquito. The area chosen for the experiment was bounded by an imaginary peripheral line connecting twenty-seven pigpens. In 1933, 628 Anopheles mosquitoes were caught in the dwellings, 24,961 in pigpens, and 1,068 in the stables of other animals. It is evident, therefore, that the mosquitoes preferred the blood of barrows to that of man.

In 1932 there were sixty-three malaria patients among the population, all of whom, with the exception of one, had a recurrence of the disease. In 1933, there were only forty-nine recurrent cases, and no new cases. None of the persons born during these two years had contracted malaria. The use of quinine had diminished, and the antimalaria prophylaxis station located in that area could be abolished.

Professor Ottolenghi

An acute disease that arose on the last day of his course of lectures caused the death of Prof. Salvatore Ottolenghi, director of the Institute of Legal Medicine of the University of Rome and of the Scuola superiore di polizia scientifica. Born at Asti in 1861 and graduated at Turin in 1884, Ottolenghi obtained, in 1893, by competitive examination, the chair of legal medicine at Siena. In 1896, he organized a university course in "polizia scientifica," which led to the foundation of the Scuola superiore di polizia scientifica. In 1903, he was transferred to the University of Rome. To Ottolenghi belongs the merit of having applied to police administration the technical methods introduced by Bertillon, Galton and Gross, and, further, of having introduced the experimental scientific method into all the functions of police administration. The method, based essentially on the criteria of psychologic anthropology, was used in connection with identification, in the study of clues obtained at the scene of a crime, in the securing of information and of testimony, in the questioning of persons suspected of crime, and, above all, in the practical objective study of the delinquent (biographic files) for the purpose of ascertaining how dangerous to society a delinquent may be, which is the basis of all measures of prevention. He published numerous treatises, the best known of which are that on forensic psychopathology (in collaboration with De Sanctis) and that on "Scientific Police Administration."

JAPAN

(From Our Regular Correspondent)

Sept. 21, 1934.

The Birth Rate and the Infant Mortality Rate

The statistical bureau of the cabinet has issued a report on births, deaths and marriages: The birth rate has shown a tendency to decrease in the last decade, although the population has been increasing. The recent large increase in population may be due to the decline in mortality.

Table 1, giving the number of births per thousand women in the child-bearing age, shows the decline of the birth rate.

TABLE 1.—*Births per Thousand Women in the Child-Bearing Age*

Year	From 15 to 45		From 20 to 29	
	Number	Index	Number	Index
1920	171	100	486	100
1925	166	97	451	93
1930	155	91	415	85

The following considerations throw light on whether the decline of the birth rate is due to the advance of the average age of married women or to the decrease of the number of births: More than 500,000 women married annually during the years from 1921 to 1927 and since then the number of marriages has been in the neighborhood of 400,000 annually. The decrease in marriages in spite of the great increase in the number of marriageable women since 1927 is due to the advance in age of those who marry, as is illustrated in table 2, giving the rate of married women per thousand women in the child-bearing age.

TABLE 2.—*Marriages per Thousand Women in the Child-Bearing Age*

Year	15-19	20-24	25-29	30-34	35-39	40-44
1920	166	649	857	894	881	846
1925	132	671	876	904	889	849
1930	110	637	886	914	916	864

The decline of the marriage rate of women in the age most favorable for child bearing causes the general decline in the birth rate. The decline in the number of marriages is due to unemployment, with a consequent difficulty in earning a livelihood. Infant mortality is also declining, as is shown in table 3.

TABLE 3.—*Infant Mortality*

Year	Mortality per 1,000 Births
1921	164
1922	166
1923	163
1924	156
1925	142
1926	137
1927	142
1928	138
1929	142
1930	124
1931	132

Early American Influence in Japan

The Japanese are aware, writes Dr. F. Shiga in a newspaper, that for the progress and prosperity of their empire they owe a great deal to their American friends. This is why they manifested such enthusiasm at the "Black Ship Festival" at Shimoda in celebration of the eightieth anniversary of the first American-Japanese treaty. The surprise visit of Commodore Perry in 1853 to appeal to the shogunate for commercial intercourse between the two countries aroused the nation. His ship, being the first steamship that the Japanese ever saw, was then called "the black ship" on account of its color. It is not entirely out of place here to recall some of those American friends whose services have caused them to be enshrined in the hearts of the Japanese people.

In the realms of political economy, diplomacy, jurisprudence and postal service there were numerous benefactors. Although less widely known, the medical personages who came to this country from America cannot be forgotten. Dr. John Berry of Massachusetts came to Japan in May 1872 and established a public hospital at Okayama. He devoted himself later to improving health conditions in Japanese prisons. Dr. B. Simons came over in 1859 and opened a public hospital at Yokohama. He was a benefactor of Japanese children suffering from roundworm and came to be known as "Master Santonin" among Japanese parents. To Miss Richard, a Christian missionary, Japan owes the present development of hospital nurse training. Japan had no hospital nurses until Miss Richard arrived in 1883. She applied to the Japanese government on arrival with the support of the American Evangelical Association, for the initiation of a hospital nurse training service. Her movement was successful and in 1886 the first training school of Christian hospital nurses was established. This led to the creation of St. Luke's Hospital, and the nurses annually turned out by the school contributed to the present development of the Red Cross and Charity Hospital here. Mr. William Eliot Griffis came here in 1870 and was employed as a teacher of the clansmen's children in Fukui province. Two years later he came to Tokyo as a university professor, and during his professorship he separated chemistry from pathology and made it an independent science in this country. Mr. Edward S. Mauls came over in 1877. He stayed only two years as professor of zoology and biology, but his contribution to scientific study in Japan was remarkable. He introduced Darwinism to Japan. He discovered the famous shell mound in Omori. He also established a course in anthropology in the Tokyo Imperial University. The list might be extended, but that given is sufficient to afford some idea of the part which American friends contributed to our development, and for which the Japanese nation will forever be grateful.

The Life Insurance Companies and Physicians

The life insurance companies are reported to have an intention to stop entrusting practitioners with physical examination of the persons to be insured. They expect to insure people without the usual physical examination. They intend to have instead an observer who will accompany the clerk and the insured, and estimate his health in a different way from that of the physician, inspecting only his outward appearance. For several years a certain company has been trying this new way with satisfactory results. They employed as observers the retired hospital sergeant majors of the army, who are so well accustomed to judging health. They are said to be able to discern intuitively even the extent, degree or nature of sickness through their many years of experience, never making a mistake. If this plan is successful, nothing would be more convenient for the companies. The military authorities have long been troubled about what to do with these sergeants when they are retired. Of course these observers will serve for ordinary occasions, but if a special examination is required a licensed physician will be sent for. The only question left unsettled is whether these observers should be permitted from the standpoint of insurance and medical regulations. The companies are at present believed ready to go so far as to revise their contract regulations with the sanction of the government. If this becomes general it will be a heavy blow to the practitioners, who already face many economic difficulties.

Marriages

RAY MCARTHUR FREEMAN, Ogdensburg, N. Y., to Miss Verna Mae Lamphear of New York, October 6.

ASHBY STEELE, Jefferson Barracks, Mo., to Miss Myrne Moffit of Cedar Rapids, Iowa, September 8.

FREDERICK D. STUBBS, Wilmington, Del., to Miss Marion Virginia Turner of Philadelphia, June 2.

THOMAS JOSEPH CONLEY JR., Chicago, to Miss Elizabeth M. Cardwell of Evanston, October 10.

MIDDLETON ELLIOTT RANDOLPH to Miss Agnes Pickett Davis, both of Baltimore, October 6.

CHARLES LINCOLN STODDARD to Mrs. Nora C. Baehrig, both of San Diego, Calif., recently.

NED C. WATTS, Taylorsville, N. C., to Miss Gladys Ausmus of La Follette, Tenn., October 9.

MATTHEW JEROME MCNEELY to Miss Virginia McLeod, both of Berry, Ky., July 20.

JOHN W. STICKNEY to Mrs. Mabel C. Jennings, both of New York, September 1.

STEPHEN T. TURNEY, Barberton, Ohio, to Miss Olga Zachar, September 15.

Deaths

Louis Gaston Labat ⊕ New York; Université de Paris Faculté de médecine, 1920; clinical professor of surgery, New York University, University and Bellevue Hospital Medical College; member of the Associated Anesthetists of the United States and Canada; on the staffs of the Woman's, New York Orthopedic, Mount Sinai and Presbyterian hospitals; aged 56; died, October 1, at his summer home at Lake Mohegan, N. Y., of myocarditis.

Paul Galpin Shipley, Baltimore; Yale University School of Medicine, New Haven, 1913; associate professor of pediatrics, Johns Hopkins University School of Medicine; member of the American Pediatric Society and the American Society for Clinical Investigation; fellow of the American College of Physicians; on the staff of the Johns Hopkins Hospital; aged 46; died suddenly, September 12, of heart disease.

Edward Frank Ziegelman ⊕ San Francisco; Jefferson Medical College of Philadelphia, 1912; member of the American Academy of Ophthalmology and Oto-Laryngology, American Laryngological, Rhinological and Otological Society and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; aged 50; died on the train, October 12, of angina pectoris.

Ernest Elmo Archer, Paintsville, Ky.; University of Louisville School of Medicine, 1910; member of the Kentucky State Medical Association; formerly mayor of Paintsville; served during the World War; aged 45; medical director and superintendent of the Paintsville Hospital, where he died, September 20, of heart disease.

Eugene P. King, Providence, R. I.; Jefferson Medical College of Philadelphia, 1880; member of the Rhode Island Medical Society; for many years second deputy superintendent and second deputy city registrar; aged 79; died, September 6, in the Jane Brown Memorial Hospital, following an operation for intestinal obstruction.

Alexander Nelson Booth, Bentleyville, Pa.; Jefferson Medical College of Philadelphia, 1887; member of the Medical Society of the State of Pennsylvania; past president of the Washington County Medical Society; for many years member of the board of education; aged 70; died suddenly, September 28, of heart disease.

Allen Donald McLean ⊕ Medical Director, Captain, U. S. Navy, retired, San Diego, Calif.; Detroit College of Medicine, 1895; fellow of the American College of Surgeons; entered the Navy in 1903 and retired in 1928 for incapacity resulting from an incident of service; aged 60; died, September 29, of bronchiectasis.

Boyd Cline Bly ⊕ Bryan, Ohio; Ohio State University College of Medicine, Columbus, 1925; past president and secretary of the Williams County Medical Society; aged 39; died, September 13, in a hospital, at Garrett, Ind., of heart disease, pulmonary abscess and acute nephritis.

William Alexander Clark, Trenton, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1879; served during the World War; on the staff of the Mercer Hospital; aged 77; died, October 2, of chronic myocarditis and occlusion of the coronary artery.

Homer Genung ⊕ Freeville, N. Y.; Homeopathic Hospital College, Cleveland, 1884; since 1921 health officer of Dryden and Freeville; on the staff of the Tompkins County Tuberculosis Hospital, Trumansburg; aged 76; died, August 7, of coronary occlusion.

Henry Howitt, Guelph, Ont., Canada; Faculty of Medicine, Trinity College, Toronto, 1873; M.R.C.S., England, 1879; fellow of the American College of Surgeons; on the staffs of the Guelph General Hospital and St. Joseph's Hospital; aged 85; died, July 22.

Robert Bruce Stephenson, Libertyville, Iowa; Starling Medical College, Columbus, 1885; aged 77; died, September 15, in the Jefferson County Hospital, Fairfield, of injuries received when he fell from the porch while cutting a branch of a tree.

Lawrence Waldo Pence, Milwaukee; State University of Iowa College of Medicine, Iowa City, 1898; served during the World War; on the staff of the Veterans' Administration Facility; aged 59; died, September 21, of heart disease.

Robert Dennis Williams, Marked Tree, Ark.; Memphis (Tenn.) Hospital Medical College, 1898; formerly sheriff of Senatobia, Miss.; aged 67; died, August 5, in the Baptist Hospital, Memphis, Tenn., following a gallbladder operation.

Cecil Clair Davis, Albuquerque, N. M.; George Washington University School of Medicine, Washington, D. C., 1918; member of the New Mexico Medical Society; aged 43; died, July 31, of hypertension, myocarditis and uremia.

George Bonnie Wheeler, Lexington, Ky.; College of Physicians and Surgeons, Baltimore, 1912; aged 50; died, September 12, in a hospital at Charleston, W. Va., following an operation for cirrhosis of the liver with ascites.

William G. Kiger, Brunswick, Miss.; University of Louisiana Medical Department, New Orleans, 1876; member of the Mississippi State Medical Association; formerly member of the state legislature; aged 87; died, July 19.

Chauncey Fairfield Brown, Hengchow, Hunan, China; Cornell University Medical College, New York, 1920; medical missionary; aged 45; died, September 24, following an operation for partially strangulated inguinal hernia.

Ambrose C. Herman, Lansdale, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1881; member of the Medical Society of the State of Pennsylvania; aged 76; died, August 31, of carcinoma of the rectum.

Charles Foster Campbell, Sunbury, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1893; formerly on the staff of the Mary M. Packer Hospital; aged 66; died, September 10, of myocarditis and spondylitis.

Edward Worthington Connolly, Vancouver, B. C., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1900; M.R.C.S., England, 1913, and L.R.C.P., London, 1913; aged 60; died, August 30, of heart disease.

Frank Edwin Wolfe ⊕ New Albany, Ind.; Kentucky School of Medicine, Louisville, 1897; on the staff of St. Edward's Hospital; aged 58; died, September 21, of arteriosclerosis, coronary occlusion and uremia.

William Miley Rivers, Yemassee, S. C.; University of Oklahoma School of Medicine, Oklahoma City, 1915; member of the South Carolina Medical Association; served during the World War; aged 43; died, July 20.

Ramon Ruiz-Arnau, San Juan, P. R.; Universidad Central de España Facultad de Medicina, Madrid, Spain, 1897; member of the Medical Society of the State of New York; aged 60; died, June 1, of angina pectoris.

John Henry Gosnell, Manchester, Wash.; University of Oregon Medical School, Portland, 1920; aged 42; died, September 14, in the Virginia Mason Hospital, Seattle, of diverticulitis with perforation and peritonitis.

Phillip Leslie McClure, Paris, Ky.; Louisville (Ky.) Medical College, 1891; member of the Kentucky State Medical Association; aged 64; died, August 30, in the W. W. Massie Memorial Hospital, of heart disease.

James Hudson Smart, Dallas, Texas; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1891; formerly city health officer; aged 66; died, September 17, of angina pectoris.

William Landis Heilman, Sterling, Neb.; Ensworth Medical College, St. Joseph, Mo., 1897; member of the Nebraska State Medical Association; formerly a pharmacist; aged 79; died, July 16, of heat stroke.

Willard Carl Barnes Feld, St. Louis; University of Pennsylvania School of Medicine, Philadelphia, 1892; aged 73; died, August 30, in the City Hospital, of a skull fracture sustained when struck by a street car.

John James Dever, Glens Falls, N. Y.; Albany (N. Y.) Medical College, 1896; for twenty years county coroner; on the staff of the Glens Falls Hospital; aged 63; died, September 21, of chronic nephritis.

William Tally Baines, Blountsville, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1888; aged 73; died, September 24, in St. Vincent's Hospital, Birmingham, of carcinoma of the prostate.

Harry Dudley Bell ✠ Oakland, Calif.; Cooper Medical College, San Francisco, 1904; aged 55; died, August 4, in the Peralta Hospital, of myocarditis, coronary occlusion and operation for hyperthyroidism.

Hall M. Eddleman, Gastonia, N. C.; College of Physicians and Surgeons, Baltimore, 1886; member of the Medical Society of the State of North Carolina; aged 76; died, September 23, of nephritis.

Frank John Novak Sr. ✠ Chicago; Rush Medical College, Chicago, 1885; on the staff of the Frances E. Willard Hospital; aged 70; died, October 3, at his home in Riverside, Ill., of coronary thrombosis.

Willard Bryant Carpenter, Columbus, Ohio; Hahnemann Medical College of Philadelphia, 1879; aged 78; died, September 19, in the Grant Hospital, of diabetes mellitus and hypertrophy of the prostate.

William George Kleinstuber, Graterford, Pa.; Jefferson Medical College of Philadelphia, 1893; aged 63; died, August 15, in the Temple University Hospital, Philadelphia, of peptic ulcer and myocarditis.

Julius B. H. Day, Social Circle, Ga.; University of Louisville (Ky.) School of Medicine, 1891; member of the Medical Association of Georgia; aged 66; died, September 7, of carcinoma of the colon.

William Herbert Riley, Vandalia, Ohio; Long Island College Hospital, Brooklyn, 1885; member of the Ohio State Medical Association; at one time bank president; aged 75; died, July 27.

Harry A. Oftel, Cambridge, Minn.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1902; aged 55; died, August 10, of coronary sclerosis.

Lewis M. Bryson, Paradise, Pa.; Jefferson Medical College of Philadelphia, 1879; member of the Medical Society of the State of Pennsylvania; aged 84; died, July 28, of coronary stenosis.

Woodbury F. Cleveland, Eastport, Maine; Hahnemann Medical College of Philadelphia, 1881; member of the Maine Medical Association; aged 78; died, September 14, of angina pectoris.

Robert Howell Baker, Watertown, Tenn.; University of Nashville Medical Department, 1873; Pulte Medical College, Cincinnati, 1881; Civil War veteran; aged 87; died, September 29.

Arthur F. Schellschmidt, Red Bud, Ill.; Hospital College of Medicine, Louisville, 1892; aged 64; on the staff of St. Clement's Hospital, where he died, September 17, of pneumonia.

Levi A. Van Pelt, Paola, Kan.; Medico-Chirurgical College of Kansas City, 1900; county health officer and county coroner; aged 69; died suddenly, September 6, of heart disease.

Joshua Edgar Jeter, Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1904; aged 54; was instantly killed, September 7, when he was struck by an automobile.

William J. Griffin, Seattle; Rush Medical College, Chicago, 1901; member of the Washington State Medical Association; aged 62; died, August 20, of cerebral hemorrhage.

Douglas Nebraska Harris, Prentice, Ill.; Northwestern Medical College, St. Joseph, 1887; member of the Illinois State Medical Society; aged 80; died, September 8, of uremia.

John L. Moore, Richmond, Va.; College of Physicians and Surgeons, Baltimore, 1886; served during the World War; aged 70; died, September 8, of coronary thrombosis.

James Welker Geist ✠ Wilkes-Barre, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1890; aged 70; died, September 18, in a local hospital, of nephritis.

Robertson A. Whitaker, Dallas, Texas (licensed in Texas under the Act of 1907); aged 74; died, September 7, in a local hospital, of gangrene of the right lower extremity.

Frederick Anthony Hahn, Santa Fe, N. M.; Harvard University Medical School, Boston, 1928; aged 31; died, September 6, when he fell from a third story porch.

Joseph Battle Philips, Middlesex, N. C.; University of Maryland School of Medicine, Baltimore, 1903; aged 54; was found dead, September 21, of heart disease.

William Henry Kasten, Lansford, Pa.; Jefferson Medical College of Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; died, June 5.

James Napoleon Ketchersid ✠ Hope, Kan.; University of the City of New York Medical Department, 1873; aged 84; died, September 30, of cerebral thrombosis.

Frederick C. Senn, Oshkosh, Wis.; College of Physicians and Surgeons of Chicago, 1885; aged 79; died, September 19, of arteriosclerosis and mitral regurgitation.

Noah Welzy Murphy, Vincennes, Ind.; Medical College of Indiana, Indianapolis, 1905; formerly a druggist; aged 56; died, August 28, of carcinoma of the liver.

Edmund L. Shirley, Apache, Okla.; St. Louis College of Physicians and Surgeons, 1887; Civil War veteran; aged 90; died, August 30, as the result of a fall.

George S. Dudley, New Brunswick, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1890; aged 68; died, September 16, of diabetes mellitus.

James Hervey Galloway ✠ Roseland, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1914; aged 44; died, June 8, of heart disease.

George E. Andrews ✠ Bay City, Mich.; University of Pennsylvania School of Medicine, Philadelphia, 1887; aged 79; died, August 31, of chronic nephritis.

Burton W. Seymour, Jamestown, N. Y.; University of Buffalo School of Medicine, 1884; aged 80; died, September 15, of acute dilatation of the heart.

Wylie Joseph Stewart ✠ Coraopolis, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1900; aged 61; died, August 26, of coronary occlusion.

Jeremiah Calfer Wilson, Greenville, Ill.; St. Louis College of Physicians and Surgeons, 1883; aged 74; died suddenly, September 9, of heart disease.

Joel Jasper Howell, Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1884; aged 85; died, August 28, of chronic myocarditis.

John Robert Barnes, South Carrollton, Ky.; University of Louisville School of Medicine, 1892; aged 76; died, September 14, of heart disease.

Rufus C. Pennywitt, Dayton, Ohio; Louisville (Ky.) Medical College, 1896; aged 62; died, September 18, in Manchester, of heart disease.

Fred Danziger, Chicago; University of Illinois College of Medicine, Chicago, 1929; aged 33; died, October 12, of carcinoma of the rectum.

Henry C. Mathis, Taylorsville, Ky.; St. Louis Medical College, 1860; aged 98; died, September 2, of cerebral hemorrhage.

Charles F. Bush, Colquitt, Ga.; University of the South Medical Department, Sewanee, Tenn., 1909; aged 46; died, August 14.

Mary Helen Thompson, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1882; aged 80; died, August 3.

Arthur B. Woolner, Chattanooga, Tenn.; Chattanooga Medical College, 1902; aged 65; died, July 27, in the Erlanger Hospital.

Emmett H. Bobbitt, Franklinton, N. C.; University of Maryland School of Medicine, Baltimore, 1877; aged 81; died, July 30.

James Buchanan Pound, Bucklin, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1897; aged 62; died, July 23.

Jeremiah C. Ellsworth, Van Wert, Ohio; Homeopathic Hospital College, Cleveland, 1871; aged 85; died, July 14.

Adolph F. Schulz, Fort Wayne, Ind. (licensed in Indiana in 1897); aged 80; died, September 18, of heart disease.

Daniel O. Menasco, Whitehaven, Tenn.; Memphis Hospital Medical College, 1891; aged 67; died, July 30.

Abner Walter Mann, Oak Grove, Mo.; Missouri Medical College, St. Louis, 1883; aged 82; died, July 18.

Julian C. Carson, Frankfort, Ind. (licensed in Indiana in 1897); aged 72; died, July 27, of heart disease.

Elbert J. Lee, St. Louis (licensed in Missouri in 1883); Civil War veteran; aged 90; died, July 25.

Bureau of Investigation

THE GERMAN FRUIT SALTS FRAUD

H. Landgraf of Philadelphia is Debarred from the Mails

For the past year or two Herman Landgraf of 1233 West Huntingdon Street, Philadelphia, has been selling through the mails what he has variously called "German Fruit Salts" or "Fruit Salts Biological Elektrolyt." On July 30, 1934, the Acting Postmaster General, on the recommendation of Judge W. E. Kelly, Solicitor for the Post Office Department, issued a fraud order debarring H. Landgraf from the use of the United States mails.

If one were to believe Mr. Landgraf, his panacea was good for practically every pathologic state to which the human body might be subject. So crudely was the nostrum exploited that it would seem that Landgraf was more ignorant than fraudulent. So little did he appreciate the inherent humbug involved in the sale of his "patent medicine" that he applied to the Council on Pharmacy and Chemistry of the American Medical Association for acceptance of his "Fruit Salts" in "New and Nonofficial Remedies." To quote *verbatim et literatim* from one of his letters to the Council:

"It is a biological method and theory to heal diseases with a specific diet which physiologically influences all diseases by dissolving physiologic, metabolic poisons, distroying bacteria, binding physiologic acids and by irritation of the finest blood vessel nerves, regulates the circulation.

"It creates electric currents splitting the molecules into Ions, which by physical oscillations produce oxygen, hydrogen, phosphorus and sulphurous Ions, which by friction produce electric currents and an artificial atmosphere. In this manner the sympathetic and parasympathetic nerves through reflexes are put into action and thus the disturbance to the blood vessels are eliminated, so that a cure can be accomplished of any disease."

The Council emphasized that one of the first requirements that physicians made before using a new remedy was a knowledge of its composition. Mr. Landgraf replied:

"Concerning your request for a quantative statement, this cannot be furnished, it being part of the secret, personal process of the manufacture by the discoverer."

Later, however, Mr. Landgraf admitted that the composition of the "Fruit Salts Biological Elektrolyt" was:

Sodium citrate	19.5 per cent
Sodium tartrate	20.5 per cent
Sodium phosphate	25.9 per cent
Sodium sulphate	34.1 per cent

From this it appears that 60 per cent of the so-called "Fruit Salts" consists of a mixture of Glauber's salts and sodium phosphate—substances that by no stretch of imagination can be called salts derived from fruits.

In his literature Mr. Landgraf listed alphabetically some of the diseased states for which his "salts" were recommended. He named only 138 conditions, but prefaced the list with the statement: "If you cannot find listed what you are looking for, please write, it is impossible to name every disease on a circular"—which seems obvious. But the alphabetical list was a noble one, from Apoplexy, through Blood poison, Cancer, Diabetes, Epilepsy, Fistula, Glaucoma, Heart disorders, Impotence, Kidney stones, Leucemia, Milk leg, Neuritis, Paralysis, Rupture, Sciatica, Tuberculosis, Ulcers, Varicose veins and Whooping cough to Yellow jaundice. The names of diseases beginning with "X" and "Z" were omitted; they would doubtless be furnished on request.

Landgraf, by offering to pay fifty cents for the names of sufferers from diabetes and some other conditions should the victims purchase his nostrum, obtained mailing lists. A physician in a small town in Pennsylvania sent to the Bureau of Investigation a letter that a patient of his had received from Landgraf. The patient had a young son with diabetes. Landgraf's letter read in part as follows:

"I am told that you have Diabetes. I import GERMAN FRUIT SALTS, specialize in Diabetes producing PERMANENT RESULTS, overcoming conditions that doctors fail in, as for instance

STOP PAINS	STOP ITCHING
STOP GANGRENE	STOP BLINDNESS
STOP NUMBNESS	STOP HARD HEARING
STOP INSULIN	STOP AMPUTATION
HEAL SORE TOES	HEAL GANGRENOUS SORES OR OTHERS

"Doctors claim diabetic sores do not heal, Salts have healed the SEVEREST sores in 10 days to 4 weeks. Salts stop the use of Insulin which neither cures nor make sugar free, but may cause blindness, hard hearing, and will poison the whole organism, so stated by german medical authority, its use will cause irreparable damage.

"I enclose a circular showing a FEW OF HUNDREDS of cases, ALL HAVE BEEN TREATED BY DOCTORS WITHOUT SUCCESS.

"For details and proof RETURN THIS LETTER BY NECT MAIL."

The doctor who sent in the letter reported that the lad's father was "much worried" since his boy was receiving rational medical treatment. No wonder! Such pernicious falsehoods regarding the rational treatment of diabetes by means of insulin, while patently absurd to physicians, were not so obvious to the layman. Here again one must believe that Landgraf's quackery was actuated more through ignorance than malice. But, as Goethe has so well said: "Nothing is more dangerous than active ignorance."

[After this article had gone into the pages, the Bureau of Investigation received a letter from Dr. L. E. Baker of Espy, Pa., reporting that H. Landgraf had come to that town allegedly as an agent for the "Hilton Chemical Company," 2626 North 12th Street, Philadelphia. Signs have been put up at small stores reading: "DIABETES. Any Disease Relieved by New System of Medicine from Europe." The storekeepers have been instructed to refer prospective patients—or victims!—to the Hilton Chemical Company. This would appear to be Landgraf's method of attempting to circumvent the fraud order issued by the United States Post Office Department.]

Correspondence

URTICARIA DUE TO COLD

To the Editor:—Under current comment, September 29, you discuss physical allergy, noting the reporting of cases of urticaria due to cold in 1905 by Fraser and by Osler. I would call attention to an article on the etiology of urticaria by George Henry Fox in 1883 (*J. Cutan. & Ven. Dis.* **1**:108, 1883).

He wrote: "Munchmeyer (*Berl. klin. Wchnschr.*, May 17, 1875) relates the case of a soldier who suffered from urticaria upon every exposure to a cold wind. It usually appeared in the form of three large circular wheals upon the cheeks and chin. Ungar (*Berl. klin. Wchnschr.*, Nov. 28, 1881) reports the case of a patient who, after a short stay in the open air, suffered from an extensive eruption of urticaria, followed in a few minutes by an attack of bronchial asthma. Upon return to a warm atmosphere, the shortness of breath gradually subsided and the urticarial wheals vanished."

It appears that observations of physical allergy, as manifested by urticaria due to cold, had found their way into medical literature at least thirty years before the reports of Fraser and of Osler.

RICHARD L. SUTTON JR., M.D., Kansas City, Mo.

PHOTOGRAPHIC ILLUSTRATION IN MEDICINE

To the Editor:—For a number of years I have paid particular attention to the illustrations that appear in textbooks and the various medical journals. Generally speaking, the standard of photographic illustrations in this country is low. This summer I reviewed one year's subscription of five standard medical journals for the quality of the photographs illustrating the articles.

From my observation of a total of 3,600 photographs which appeared in these journals I compiled the following statistics: 864, or 24 per cent of the illustrations, were poor; 1,218, or 34 per cent, were only fair; 1,518, or 42 per cent, were good or excellent.

I might mention that on looking over these illustrations I took into consideration the difficulty of photographing certain

clinical subjects and the usual loss of detail that is encountered in the preparation of cuts. I noticed many beautiful photographs of roentgenograms. However, I feel safe in saying that in general the illustrations showing roentgenograms had the poorest average of the various types of photographs studied. It was especially interesting and gratifying to note that articles issued from institutions in which members of the Biological Photographic Association are employed were illustrated by photographs of a decidedly better quality and invariably fell into the good or excellent class.

A letter of inquiry was sent to the editors of journals that were reviewed regarding their policy for the acceptance of photographic material for publication.

Each reply states that a high standard is maintained and that poor prints are often returned or the negatives requested so that better prints may be made. Considering the efforts on the part of the editors to publish only photographs of better quality, it is rather discouraging to note that only 42 per cent are only good or excellent. I fully appreciate the fact that no definite conclusion can be drawn from a study of one year's subscription. Nevertheless it affords a fairly good idea of the type of photographs that appear in the medical journals.

Why are the illustrations of a low standard? First, too many physicians who have little or no knowledge of the principles of photography are attempting to illustrate their own cases. I am fully aware of the fact that a great deal of very fine photographic work is being done by various members of the medical profession. However, these men are by far in the minority.

If medical men want to do this sort of work, they should take the time to learn to do it properly. Good medical photography is not a snap, snap proposition. It requires more than a clinical camera outfit. A broad knowledge of photography plus the skill to apply this information to biologic subjects is most essential. So far as helping to overcome this condition, I would suggest that whenever possible members of the Biological Photographic Association offer courses of instruction to groups of medical men who are especially interested in this work. Such opportunities present themselves particularly in medical schools and large hospitals.

During my last two or three years in the photographic department of the Yale Medical School, courses in clinical photography were given to the interns in pathology each winter and they proved highly successful. Similar courses have been carried on at the Veterans' Administration Facility, Hines, Ill.

The average physician should be more critical regarding the photographs that are to illustrate an article into which he has put long hours of exacting work.

Another reason for the poor quality of the pictures that are seen in medical journals is the fact that in many institutions it is assumed that because the x-ray technician deals with light, films and developer he naturally has all the qualifications of an expert clinical photographer. We have in the Biological Photographic Association men who are skilled experts in both x-ray work and biologic photography. However, this is an exception rather than the rule.

As far as I know, Mr. Carl D. Clarke of the University of Maryland was the first to mention the possibility of a school in which one could receive special training in biologic photography. If such an idea could be worked out satisfactorily, there is no doubt that it would be a great step forward, and as a result, the photographic illustrations would be considerably improved.

Ralph P. Creer, Veterans' Administration Facility,
Hines, Ill.

Senior Clinical Photographer; President,
Biological Photographic Association.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CHRONIC APPENDICITIS

To the Editor:—I have under my care a newly married woman, aged 26, who has been complaining of pain in the right lower quadrant of the abdomen. This pain has been present almost daily for the past two months and at times there is some gastric upset without any vomiting accompanying the pain. Although the pain is quite severe, the patient is able to continue her work as a secretary. She has noticed that the pain is more severe after exercise and along toward evening. Examination reveals some tenderness on deep palpation over McBurney's point. Examination of the pelvis is negative save for a mild leukorrhea, which, the patient states, has existed since she was a child. Menstruation has been fairly regular, although it is sometimes a few days late and lasts only two or three days. There is no dysmenorrhea. A roentgenogram taken after the ingestion of an opaque meal showed a retrocecal appendix and the transverse colon markedly spastic. Would you please tell me the proper way to treat this case? Are all retrocecal appendixes pathologic? If so, what would be the proper treatment for a patient who refused operation? Would a spastic large bowel give this train of symptoms? Please omit name. M.D., Connecticut.

Answer.—The symptoms are strongly suggestive of a subacute or so-called chronic appendicitis. Stomach symptoms are a frequent accompaniment.

The local tenderness over the region of the appendix is quite characteristic of a diseased appendix.

An important condition to differentiate in this case is a spastic colitis. As a rule, when the symptoms are due to a spastic colitis the tenderness is not localized over the appendix but is more diffuse, extending over the ascending colon, and in nearly all instances it is present over the sigmoid colon. In thin persons the sigmoid may be palpated and felt to be slightly rigid, thickened and definitely tender.

Both conditions may be present, but in the absence of more definite changes one would be inclined to treat a case showing tenderness over the sigmoid and ascending colon as an irritable bowel.

One should consider other conditions causing tenderness in the right lower quadrant and should look for kidney disorder, obstructing bands from so-called Jackson's membrane, a regional ileitis, omental bands, pelvic disease, and other conditions accessible through a muscle-splitting incision.

At present it is impossible to say that all retrocecal appendixes are pathologic, but they are frequently kinked and subject to stasis, fecaliths and consequently attacks of inflammation.

In this case one would believe that operation is indicated, with careful exploration through a muscle splitting incision. The risk in good hands is almost negligible.

Nonoperative treatment would consist of a diet that avoids irritation to the bowel and above all constipation. There should be plenty of well cooked or thoroughly ground vegetables with a well balanced diet. Liquid petrolatum may be of value.

The patient should be warned of the danger of an acute appendicitis and the great frequency of perforation and peritonitis within the first twenty-four or forty-eight hours, with its resulting high mortality.

URTICARIA AT MENOPAUSE

To the Editor:—Will you kindly tell me the relationship of the menopause to urticarial skin lesions and whether endocrine therapy is of any value? What is the status of autohemotherapy in the treatment of hives, and what is the best dosage and interval of treatment? Kindly omit name. M.D., California.

Answer.—The ovarian deficiency at the menopause may lower the threshold of irritability so that urticaria may result from slight causes, less than sufficient to evoke it at other periods of life. On the other hand, according to Engelbach (Endocrine Medicine, Springfield, Ill., and Baltimore, C. C. Thomas, 1932), urticaria may be a symptom of nearly any of the forms of endocrine excess. It was part of the clinical picture in 20 of 351 cases of thyroidism, 27 of 492 cases of pituitarism, 5 of 160 cases of thyropituitarism and 23 of 504 cases of gonadism. Women with a preceding endocrinism do not respond normally to the menopause. The symptoms of this change in such patients are not caused by a simple reduction in ovarian activity. To interpret them the preceding endocrine abnormality must be determined. This requires careful study, and after the correct diagnosis is made the response to treatment may be slow or unsatisfactory in such old cases.

Autohemotherapy is often successful in terminating chronic urticaria for which no cause has been found. The dosage varies ordinarily from 5 to 20 cc., at five day intervals. Immediately after the blood has been drawn it is injected deeply into the buttock. A slight febrile reaction after the first or one of the early injections need not cause surprise.

CEREBRAL INJURY AND SUGAR METABOLISM

To the Editor:—Last November a man, aged 48, was taken to the hospital suffering from a sudden attack of unconsciousness, which was diagnosed as spontaneous subarachnoid hemorrhage. Spinal tap showed blood and xanthochromia. He had a chronic hypertensive condition. There were no especially significant urinary changes. There was no sugar in the urine. The blood sugar was 102 mg. per hundred cubic centimeters of blood. After about ten days his condition improved and he went home feeling quite well. There was no paralysis. Three weeks ago a urinalysis showed no marked abnormalities. A week ago he again became unconscious. A period of about two hours elapsed from the onset until unconsciousness was complete. He had passed urine early that morning and nearly two pints was removed by catheterization from a distended bladder. Breathing was stertorous. The reflexes were lowered. The pupils were medium, fixed and unequal. A spinal tap withdrew 6 cm. of bloody fluid under moderate pressure, 12 mm. of mercury. The blood pressure was 270 systolic, 145 diastolic. There was no sugar in the urine. The blood sugar was 275. No diacetic acid was reported. The same diagnosis was made as for the first attack. The patient died about twelve hours after the onset of the attack without regaining consciousness. Because of the history and absence of diacetic acid I am assuming that the high blood sugar was the result of cerebral irritation from the hemorrhage. If it was of cerebral origin, what effect if any would the high blood sugar have on the progress of the case and how, if at all, should treatment be modified by its presence? Is there any use for insulin in this condition? Also dextrose? Please omit name.

M.D., Pennsylvania.

ANSWER.—Cerebral injury, if it affects the subthalamic regions of the brain, is frequently accompanied by hyperglycemia and glycosuria. As a rule the disturbance of carbohydrate metabolism produced by this means is transient. There is no evidence that the supply of insulin is disturbed, and it is presumed that the effect like that following puncture of the floor of the fourth ventricle, the Claude Bernard procedure, is to stimulate the glycosecretory sympathetic fibers to the liver. However, injected insulin will counteract the resulting glycogenolysis and thus reduce the blood sugar to normal and stop the excretion of sugar.

It is also possible in cases of severe hypertension to have a hyperglycemia and some glycosuria without there being any cerebral injury. This, possibly, is to be attributed to overfunction of the suprarenals.

In neither of these conditions is the control of hyperglycemia and glycosuria of much importance clinically. At worst, the diabetic conditions resulting are not severe or accompanied by much, if any, ketosis. It is not considered probable that the hyperglycemia in this patient affected the progress of the case or that its treatment would have modified the course.

FOOD ABSORPTION FROM RECTUM

To the Editor:—I should like to know to what extent dextrose (5 per cent solution), peptonized milk and whisky are absorbed from the rectum. References to the literature will be appreciated. Kindly omit name and address.

M.D., New York.

ANSWER.—The question of the absorption of dextrose from the rectum is still a controversial matter (Collens, W. S., and Boas, L. C.: Absorption of Dextrose by Rectum, *Arch. Int. Med.* **52**:317 [Aug.] 1933. Bauer, J., and Monguio, J.: Sugar Metabolism in Relation to Resorption of Sugar Administered by Rectum, *Klin. Wchnschr.* **11**:1820 [Oct. 29] 1932. Scott, E. L., and Zweighaft, J. F. B.: Blood Sugar in Man Following Rectal Administration of Dextrose, *Arch. Int. Med.*, **49**:221 [Feb.] 1932. Julesz, M., and Winkler, E.: Effect of Rectal Administration of Concentrated Dextrose Solutions on Blood Sugar, *Ztschr. f. d. ges. exper. Med.* **80**:823, 1932. Perusse, G. L.: The Solution of Choice in Proctoclysis, *Surg., Gynec. & Obst.* **54**:770 [May] 1932). The amount absorbed is certainly not great enough to be of much importance for purposes of nutrition. The use of peptonized milk is no doubt an error (Van Noorden, Carl: Ueber rectale und parenterale Ernähung, *Therap. Halbmonatsh.* **34**:1 [Jan. 1], 40 [Jan. 15] 1920), for the fat is not absorbed, nor the lactose to any great extent. The peptone is probably the most important ingredient, and this might more rationally be administered in 10 or 20 per cent solution in physiologic solution of sodium chloride. Alcohol is quite readily absorbed from the rectum, best from a 10 per cent solution (Hauzlik and Collins: *J. Pharmacol. & Exper. Therap.* **5**:185, 1913).

POSTGONORRHEAL INFECTIONS

To the Editor:—A man, aged 35, presented himself six months ago with the complaints of frequency, nocturia, backache and a clear urethral discharge. He stated that for the six weeks prior to that he had had a thick yellow discharge and burning on urination. He had received no treatment for this condition. On examination the prostate was enlarged and extremely painful, but soft. Smears made were negative for the gonococcus. He was given prostatic massage, gently at first, and then gradually posterior instillations were added. Preparations so used were silver nitrate, strong silver protein and neosilvol. All the symptoms gradually left, and he is now feeling very well again. Only one thing is still not as I wish it. His urine, only the first specimen passed, is loaded with small threads of mucus and always contains six or eight large threads. The urine is clear and normal otherwise. I have been massaging the prostate and instilling neosilvol up to 10 per cent and silver nitrate up to 0.4 per cent every other day, but the threads persist. The prostate, although now of normal size, is still a bit tender. After a month's rest he returned with no improvement. Can you suggest any further treatment to clear up the urine? Please omit name.

M.D., Missouri.

ANSWER.—It is not uncommon for a patient at this stage to have shreds containing gonococci with the condition of a latent or carrier-like state, although usually but not always there is clinical activity after the instillation of silver nitrate. Also, about 10 per cent of postgonorrheal infections are due to colon bacilluria and respond favorably, as a rule, to high acidification as obtained by the ingestion of from 4 to 6 Gm. of ammonium chloride daily, in divided doses, combined with the administration of methenamine or methenamine salicylate, from 2 to 4 Gm. daily. Finally, many patients with the condition described will show on urethroscopic examination infection of dilated prostatic ducts which, if present, require eradication by electrical excision or cauterization transurethrally.

VINCENT'S INFECTION OF MUCOUS MEMBRANES

To the Editor:—In Vincent's angina do ulcers develop on any other membranes than the membranes of the mouth or throat? Are the organisms found in cases of infection in the vagina? All the books that I have which make reference to Vincent's infection speak only of the mouth and throat as the location of the ulcers.

C. L. PEARCY, M.D., Salem, W. Va.

ANSWER.—Fusospirochetal (Vincent's disease) infections of parts of the body other than the oral cavity have been described repeatedly. Davis and Pilot (Studies of Bacillus Fusiformis and Vincent's Spirochete, THE JOURNAL, Sept. 16, 1922, p. 944) reported a number of cases of a gangrenous condition of the penis presumably caused by these organisms. Cases of putrid gangrenous abscesses of the lungs and brain are even more numerous in the literature. A recent monograph (Smith, D. T.: Oral Spirochetes and Related Organisms in Fusospirochetal Disease, Baltimore, Williams & Wilkins Company, 1932) discusses this subject in great detail. According to Smith, most of the reported fusospirochetal infections in the female genital region are of the gangrenous or noma type, rather than ulcerative, and are relatively rare. On the other hand, "fusiform bacilli and spirochetes are commonly found about the clitoris of normal women but are usually absent in smears from the vagina. Women of the prostitute class become carriers of the infection." Balanitis in the male may be traced in many instances to cohabitation with women in the last group.

BCG INOCULATIONS AGAINST TUBERCULOSIS

To the Editor:—It is my understanding that the Chicago Board of Health has some method of inoculating against pulmonary tuberculosis. I have been unable to find in any of the recent medical journals information concerning any such remedy which is certain enough to be used in as massed quantity as the Chicago Board of Health seems to be going to use. Possibly I have overlooked this news, but if possible would you kindly send me such information as may be at hand concerning the treatment as intended to be used by the Chicago Board of Health.

GEORGE H. WATTERS, M.D., Des Moines, Iowa.

ANSWER.—The question was referred to the president of the Board of Health of Chicago, who writes: "The Chicago Board of Health is not using any method of inoculation for the prevention of pulmonary tuberculosis. It is evident that this inquiry refers to the contemplated use of BCG vaccine by the Municipal Tuberculosis Sanitarium. At present there is no unanimity of opinion as to the value of BCG vaccination nor is the evidence absolutely definite that the vaccine may not have certain dangers. S. A. Petroff, director of research and clinical laboratory of the Trudeau Sanatorium, Trudeau, N. Y., seems to be the chief opponent of this method of vaccination in the United States. Dr. William Park evidently believes that it may have value in protection of infants in contact with tuberculous parents. The board of health could not consider the use of this method until there is some general agreement as to its value and safety."

BLOOD IN SEMEN

To the Editor:—A man, aged 28, single, in the past two months has noticed blood in the semen, detected in removing a condom after intercourse. The amount is small but sufficient to notice. No gross blood appeared in the urine voided a few minutes later. He states that an anterior gonorrheal urethritis occurred eight years ago, which responded to treatment in three weeks and was without complications and recurrences. The Wassermann and urine tests are negative. The prostate and entire urinary system are entirely normal so far as I can tell. A prostatic smear is negative for gonococci. Please omit name if published.

M.D., Tennessee.

ANSWER.—Blood in the semen may be due to a number of causes: (1) tuberculosis of the lower end of the genital tract; (2) stones in the seminal vesicles; (3) papilloma or other neoplastic growths in the posterior urethra in the region of the ejaculatory ducts; (4) granulations in the lower end of the genital tract. A study directed to these parts will usually establish a diagnosis. The differentiation can be made only by a combined laboratory and visual examination of the parts mentioned.

ROENTGEN TREATMENT OF TONSILS

To the Editor:—Will you kindly tell me the merits of shrinking the tonsils with x-rays as compared with regular tonsillectomy? Kindly omit name.

M.D., Georgia.

ANSWER.—Some years ago there was considerable furor regarding applications of the x-rays in the endeavor to remove the tonsils. As a matter of fact the tonsils were diminished in size owing to changes in the lymphoid structures, but the epithelium lining the crypts was not destroyed. The tonsils themselves were merely diminished in size but not caused to disappear. Sterilization of the crypts was effected, but it lasted for only a few days after irradiation. In a word, the recurrence of tonsillitis was not prevented and many patients had to be operated on later in the usual manner. Roentgen treatment of the tonsils is no substitute for tonsillectomy. If chronic tonsillitis is present, complete removal of the tonsils by one method or another is the proper procedure.

POSTOPERATIVE CARE OF CUTANEOUS CARCINOMA

To the Editor:—A woman, aged 45, presented a small epithelial growth, the size of a pea, on her forehead. I removed the growth under local anesthesia, taking out some normal surrounding tissue to make certain that I had removed it completely. Microscopic examination showed a cornified epithelial surface; subjacent structures show nests of epithelial cells, with slight variation of size and shape and occasional mitotic figures. The microscopic diagnosis by the pathologist was basal cell carcinoma. Please advise me whether high voltage roentgen therapy is indicated now in this type of case. Please omit my name and address if this is published.

M.D., Maine.

ANSWER.—When dealing with small superficial basal cell epitheliomas that have been excised, the consensus is that it is not necessary to irradiate the area. It is advisable, however, to inspect the area about twice a year for a few years.

TREATMENT OF SYPHILIS

To the Editor:—In "Standard Treatment Procedure in Early Syphilis" and in the part corresponding to a "Scheme of Treatment for Early Syphilis" (THE JOURNAL, April 21), I find the indication of 20 centigrams of bismuth. I wish to know whether this refers to a bismuth salt or to metallic bismuth. I also wish to know the doses of potassium iodide and of the mercuric ointment mentioned in the part to which I refer. It also would interest me to obtain the schedule of treatment referring to it.

J. E. CAVELIER, M.D., Bogota, Colombia.

ANSWER.—The 20 centigrams of bismuth refers to a bismuth salt, the salicylate. The doses of potassium iodide suggested are an average of 1.3 to 2 Gm. (from 20 to 30 grains) three times daily. The dose of mercurial ointment is 4 Gm. of the 50 per cent U. S. P. ointment. The inunctions are given at the rate of six each week, with the usual technic of application.

TREATMENT OF BEE STINGS WITH EPINEPHRINE

To the Editor:—In the answer to the query as to the effective treatment for bee stings, in THE JOURNAL, September 22, p. 937, the June 1934 issue of *Bees and Honey* is cited as recommending the use of epinephrine intramuscularly or intravenously in a dosage of 1 cc. of 1:1,000 solution. Having had experience in the intravenous use of epinephrine 1:1,000 in peracute attacks of bronchial asthma, I would suggest that its use intravenously in the dosage recommended would be highly dangerous. If the emergency is such that epinephrine 1:1,000 must be used intravenously, it should be used in small doses of from 0.05 to 0.20 cc., well diluted with saline solution and injected very slowly.

JEROME GLASER, M.D., Rochester, N. Y.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written (Group B candidates).* The examination will be held in various cities throughout the country, April 29. *Oral (Group A and Group B candidates).* New York, June 10. Sec., Dr. C. Guy Lane, 416 Marlborough St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written (Group B candidates).* The examination will be held in various cities of the United States and Canada, Nov. 3. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: San Antonio, Texas, Nov. 12; Philadelphia, June 10. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: San Antonio, Texas, Nov. 13. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

ARKANSAS: *Basic Science.* Little Rock, Nov. 5. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Regular.* Little Rock, Nov. 12. Sec., Dr. A. S. Buchanan, Prescott. *Eclectic.* Little Rock, Nov. 13. Sec., Dr. L. L. Marshall, 820 W. 14th St., Little Rock. *Homeopathic.* Fayetteville, Nov. 13. Sec., Dr. Allison A. Pringle, Eureka Springs.

CALIFORNIA: *Reciprocity.* Los Angeles, Dec. 5. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Regular.* Hartford, Nov. 13-14. *Endorsement.* Hartford, Nov. 27. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* New Haven, Nov. 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Wilmington, Dec. 11-13. Sec., Dr. Harold L. Springer, 1013 Washington St., Wilmington.

FLORIDA: Tampa, Nov. 12-13. Sec., Dr. William M. Rowlett, Box 786, Tampa.

KANSAS: Topeka, Dec. 11-12. Sec., Dr. C. H. Ewing, Larned.

KENTUCKY: Louisville, Dec. 4-6. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MAINE: Portland, Nov. 13-14. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton Jr., 192 State St., Portland.

MARYLAND: *Regular.* Baltimore, Dec. 11-14. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 11-12. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 13-15. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 144 State House, Boston.

NEBRASKA: Lincoln, Nov. 22-23. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, Nov. 5. Sec., Dr. Edward E. Hamer, Carson City.

NORTH CAROLINA: *Endorsement.* Raleigh, Dec. 3. Sec., Dr. Benj. J. Lawrence, 503 Professional Bldg., Raleigh.

OHIO: Columbus, Dec. 3-6. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: *Reciprocity.* Oklahoma City, Dec. 11. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

OREGON: *Basic Science.* Portland, Nov. 17. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene.

SOUTH CAROLINA: Columbia, Nov. 13. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TEXAS: Galveston, Nov. 20-22. Sec., Dr. T. J. Crowe, 918 Mercantile Bank Bldg., Dallas.

VIRGINIA: Richmond, Dec. 12-14. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke.

WEST VIRGINIA: Martinsburg, Oct. 29-31. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

WISCONSIN: *Basic Science.* Milwaukee, Dec. 15. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

Louisiana June Report

Dr. Roy B. Harrison, secretary, Louisiana State Board of Medical Examiners, reports the written and practical examination held at New Orleans, June 7-9, 1934. The examination covered 12 subjects and included 100 questions. An average of 75 per cent was required to pass. One hundred and three candidates were examined, all of whom passed. Five physicians were licensed by reciprocity. The following schools were represented:

PASSED		
School	Year Grad.	Per Cent
Emory University School of Medicine	(1926)	85.2
Northwestern University Medical School	(1933)	89.1
Louisiana State University Medical Center	(1934)	79.8,* 82.5,* 82.5,* 83.2,* 84.1,* 84.2,* 84.3,* 84.7, 84.9,* 85.5,* 85.6,* 85.7, 85.8,* 86.5,* 86.8,* 87,* 87.2,† 87.7,* 88.4,* 89*
Tulane University of Louisiana School of Medicine	(1931) (1933)	82.3, 82.6, 87.5, (1934) 80.3, 80.6, 81.2, 81.2, 81.3, 81.8, 82, 82.1, 82.1, 82.2, 82.3, 82.3, 82.7, 83.2, 83.3, 83.4, 83.4, 83.5, 83.6, 83.6, 83.6, 83.7, 83.9, 84, 84.2, 84.2, 84.4, 84.5, 84.6, 84.6, 84.7, 84.8, 84.8, 84.9, 84.9, 84.9, 85, 85, 85, 85.1, 85.3, 85.3, 85.4, 85.4, 85.5, 85.5, 85.6, 85.6, 85.6, 85.7, 85.7, 85.8, 85.8, 85.9, 85.9, 86, 86.3, 86.3, 86.4, 86.7, 86.8, 87, 87, 87, 87.1, 87.2, 87.5, 87.6, 87.6, 87.7, 87.9, 87.9, 88.4, 88.5, 88.7, 89
University of Tennessee College of Medicine	(1933)	79.8
Medical College of Virginia	(1932)	82.7

LICENSED BY RECIPROCITY		
School	Year Grad.	Reciprocity with
Emory University School of Medicine	(1923)	Georgia
University of Louisville School of Medicine	(1932)	Texas
Tulane University of Louisiana School of Medicine	(1924)	Texas
Meharry Medical College	(1913)	Arkansas
Baylor University College of Medicine	(1931)	Texas

* This applicant has received his M.B. degree and will receive his M.D. degree and Louisiana license on completion of internship.

† License has not been issued.

Book Notices

Summary of Pennsylvania's Poor Relief Laws Affecting Care of Indigent Sick. A Digest of Laws and Practices with Supplements Discussing the Pennsylvania Plan for Emergency Medical Service to Those on Unemployment Relief and Pennsylvania's Work Relief Compensation Fund. Paper. Pp. 100. Harrisburg: Medical Society of the State of Pennsylvania, 1934.

In a concise, well prepared, handy volume, the Medical Society of the State of Pennsylvania conveys to the reader facts, experiences and suggestions pertaining to the medical phase of relief to the indigent. The booklet was prepared for distribution to county poor authorities, social workers, county medical society officers and others interested in providing minimal adequate medical service to the indigent. It brings together, for easy reference, county reports giving the type of organization responsible for poor relief, the methods used in providing medical care, the amount paid for medical services to the indigent, and suggestions for improvement of these services. A section is devoted to a digest of the poor relief laws and practices of Pennsylvania in which important definitions and procedures are clearly set forth.

It is logical that in connection with the discussion of general poor relief some attention be given to the recent development of emergency medical service to those on unemployment relief. The Pennsylvania plan, including rules and regulations, fees and suggestions for its operation, is given in detail. An interesting and instructive table on page 94 gives for five counties separately, and for the entire state, the extent and costs of medical services and the ratio of these services to the number of relief cases. A brief discussion of medical service under Pennsylvania's Work Relief Compensation Fund indicates the interest that is being taken in the medical phase of workmen's compensation by the Medical Society of the State of Pennsylvania.

A compilation of information such as that contained in this publication is sure to assist materially in improving the general understanding on an important phase of medical practice. With the facts thus clearly set forth it should be possible more easily to effect improvements in the medical services to the indigent wherever such improvements seem indicated. A similar compilation of state poor laws and practices in other states would be a valuable assistance to those who are interested in and responsible for this work.

Thérapeutique médicale. VII: Vaisseaux et reins. Par M. Loeper. Avec la collaboration de MM. A. Lemaire, M. Debray, A. Zimmern, M. Villaret, Pasteur Vallery-Radot et J. Cottet. Paper. Price, 50 francs. Pp. 339, with 26 illustrations. Paris: Masson & Cie, 1934.

This is the seventh volume published by the chair of therapeutics of the Medical Faculty of Paris, under the leadership of M. Loeper; it deals with the blood vessels and the kidneys. Like the other volumes of this series, it is the result of the collaboration of a number of authors. One might deplore the occasionally uncritical display of erudition, which, starting with premises not definitely established, and probably erroneous, builds on this a program of action that is highly logical but unfortunately suffers from the fault that it does not accomplish the result. Thus Loeper, writing on arteriosclerosis, concentrates the fire of his heavy therapeutic artillery on the calcium and the cholesterol deposited in the diseased vessels, as though these chemical bodies, instead of their presence being the result, were the cause of the changes in the blood vessels. He proposes a low calcium and low cholesterol regimen, "decalcifying," medicaments, such as sodium silicate and sodium iodide, and, because calcium precipitates in an alkaline medium, the administration of phosphoric and lactic acids, apparently oblivious to the fact that the bones furnish an almost inexhaustible mine of available calcium that is actually tapped by acidifying the system. He has great faith in tincture of garlic (50 drops daily) and still more especially in its active principle, diallyl disulphide (0.02 Gm. in 1 cc. of oil), which is quite powerful in temporarily reducing blood pressure. Unfortunately, the transient effect of these rather painful injections cannot be expected to produce any important impression on the course of arteriosclerosis. Obviously, in therapeutics as in many other ways the French, with their therapeutic optimism, are diametrically opposite in their tendency to their hereditary enemies, the Germans, with their therapeutic nihilism. Which is the better awaits the decision of the question as to whether it is better to have a "doubtful remedy than none" or "better no remedy at all than a doubtful one." Loeper has a good word to say for crataegus (Hawthorn berries, fluidextract 0.3 cc. twice daily) as a remedy to calm cardiac excitability in patients with a tendency to angina pectoris. In arterial hypertension, acetylcholine is spoken of along with the nitrites and yohimbine, which latter is shown to be capable of increasing the duration of the fall in blood pressure produced by acetylcholine. The indications of general and local bloodletting are discussed. The diuretics are taken up under two headings: the extrarenal, including water, salts, and digitalis bodies, and the renal diuretics, with the xanthine series, the mercurials and tincture of onion. The methods of treating nephrolithiasis, of hematuria and of renal tuberculosis are all taken up in a most practical manner. There is a chapter on urinary antiseptics. Kidney substance is believed to be a remedy of possibly special value in the anemia of kidney disease, though in other anemias it is undoubtedly inferior to liver. The book concludes with a symposium on the dietetics and the physical therapy of these diseases, including—as is the custom with European works of this kind—an evaluation of the national mineral spring resources, a matter in which we of this country are sadly remiss.

The Prospective Mother: A Handbook for Women During Pregnancy. By J. Morris Slemons, M.D., Professor of Obstetrics and Gynecology, University of California. Third edition. Cloth. Price, $2. Pp. 311. New York & London: D. Appleton-Century Company, Inc., 1934.

In the present edition, which appears thirteen years after the second edition, the chief changes include the hormone tests for the diagnosis of early pregnancy, the value of the x-rays for greater accuracy of diagnosis, new treatments for the ailments of pregnancy, the gain in weight during pregnancy, and the more recent methods for the relief of pain during labor. The author accurately and in simple language answers all questions that women generally ask during pregnancy. This book explains what goes on not only in the uterus but in the entire body during gestation. The advice given is helpful and will allay the fears many women have of the ordeal of childbirth. The technical terms used throughout the book are defined in a glossary at the end. A few minor criticisms may be mentioned. Among the methods for reviving a new-born child, the author advocates dipping the child alternately into warm and cold water. The latter may prove harmful to some babies. Slemons speaks of a "final examination" after delivery. This term should not be used, because it is a mistake to give women the impression that the examination made six or eight weeks after a baby is born is the final contact with their physican until another pregnancy supervenes. Repeated visits are particularly important for women who have had toxemia, nephritis or other complications during pregnancy, but even women who have had no complications should visit a physician at least once a year after a child is born. The author uses the terms caesarean and anaesthesia instead of the simplified spelling. Without doubt the present edition, like the two previous ones, will prove to be highly popular with prospective mothers.

Essays on Chronic and Familial Syphilis. By Griffith Evans, M.A., D.M., F.R.C.S., Hon. Surgeon, Caernarvonshire and Anglesey Infirmary. Cloth. Price, $3. Pp. 91, with 13 illustrations. Baltimore: William Wood & Company, 1933.

This series of nine papers is in part a collection of previous journal publications and the essays awarded the gold medal of the Hunterian Society in 1932. It deals with that "penumbra of doubt" at the confines of established diagnostic and clinical syphilology which deserves sincere consideration as knowledge of the pathologic mechanisms of the disease widens under the granular stage concept and the observations and opinions of Warthin. The leading topics are syphilis and nervous dyspepsia, and syphilis as a factor in chronic conditions of the abdomen, in nervous dysphagia, in anemia and glossitis with dysphagia, in finger nails and tongues, and in carcinoma. The author's familiarity with recent literature on syphilis is noteworthy and pleasing. Some of the applications have the overbalanced quality of the French fourth generation school (syphilis héréditaire larvée). The pitfalls of nonspecific effect in therapeutic

testing seem largely disregarded. As a summary of impressions that often press on the syphilis-alert clinician yet preserve a ghostly intangibility and a defiance of exact analysis, this little book is a thought-provoking and interesting contribution. Its defiance of the negative Wassermann reaction is timely. As the comment of a surgeon on the borderland of what is too often a sturdily ignored field when operative considerations claim the stage, it is in a happy sense unusual.

Ergebnisse der gesamten Tuberkuloseforschung. Herausgegeben von H. Assmann, H. Beitzke und H. Braeuning. Band VI. Paper. Price, 69 marks. Pp 736, with 107 illustrations. Leipzig: Georg Thieme, 1934.

This book is divided into eleven parts, each written by a different author. The work is presented in logical sequence, beginning with the allergy that results from the first attack with tubercle bacilli, as well as the tuberculous focus itself. A discussion of the literature on primary tuberculosis precedes the presentation of material. This chapter is beautifully illustrated with x-ray films, which show all the stages of primary pulmonary tuberculosis from the inflammatory area about the focus to the formation of Ghon tubercles with calcium in the hilar lymph nodes. For this type of tuberculosis the author gives a good prognosis. In the discussion of the secondary infiltration he points out that the prognosis is not so favorable. Good illustrations of miliary tuberculosis and descriptions of tuberculous meningitis are presented. One chapter is devoted to the pathologic anatomy and in another there is an extensive discussion of hematogenous tuberculosis, which includes almost all the organs that may be involved. Various phases of surgery of the chest are presented by Roloff and by Sauerbruch and Fick. These chapters are profusely illustrated with drawings and reproductions of x-ray films, showing the results of phrenic exeresis and all modern surgical procedures. One chapter is devoted largely to rehabilitation, in which attention is called to the various kinds of work tuberculous patients are capable of doing. Some space is given to a discussion of the Potts Memorial Hospital of New York for that purpose. Other schemes, such as that at Papworth village, are fully discussed. Finally, a part is devoted to pleurisy by J. Adolph Frederiksen. In this chapter, all forms of pleurisy are discussed. Each part of this volume contains an extensive list of references. The long index impresses on one the large number of subjects covered.

Medicine in Persia. By Cyril Elgood, M.D., M.R.C.P. No. XIV, Clio Medica: A Series of Primers on the History of Medicine. Edited by E. B. Krumbhaar, M.D. Cloth. Price, $1.50. Pp. 105, with 11 illustrations. New York: Paul B. Hoeber, Inc., 1934.

German Medicine. By W. Haberling M.D., Professor of the History of Medicine, Academy of Düsseldorf. Translated by Jules Freund, M.D. No. XIII, Clio Medica: A Series of Primers on the History of Medicine. Edited by E. B. Krumbhaar, M.D. Cloth. Price, $1.50. Pp. 160, with 9 illustrations. New York: Paul B. Hoeber, Inc., 1934.

Japanese Medicine. By Y. Fujikawa, M.D. With a chapter on the Recent History of Medicine in Japan by Kageyas W. Amano, M.D. Translated from the German by John Ruhräh, M.D. No. XII, Clio Medica: A Series of Primers on the History of Medicine. Edited by E. B. Krumbhaar, M.D. Cloth. Price, $1.50. Pp. 114, with 8 illustrations. New York: Paul B. Hoeber, Inc., 1934.

These three volumes are part of an extensive series of works on the history of medicine, which is being developed by the Hoeber Press.

The medical history of Persia begins with the fourth of the kings of Persia. The earliest references are to surgery and the use of anesthesia. Darius had Egyptian physicians, but it was to a Greek that he owed the saving of his leg. Dr. Elgood, the author, was himself physician to the British legation in Persia and he writes with a fine understanding of Persian tradition. His consideration takes up the story in chronological order, bringing the account down to 1927. It is his conclusion that Persia has played a glorious part in history but that in recent years has been only an imitator.

The story of German medicine is told by the professor of the history of medicine in Düsseldorf. He begins with a modest preface in which he points out that few phases in the history of medicine were created by the Germans but that German medicine must be correlated with the developments of medicine throughout the world. He also takes up the story of medicine chronologically, listing the many great names in the history of German medicine. His book was written in October 1933, yet he does not fail to give full credit to the tremendous contributions of Jewish physicians to medicine in Germany. In bringing his story down to date he perhaps wisely avoids any consideration of the peculiar trend which German medicine has taken in the last year. Two deeply significant paragraphs are found in his concluding pages:

> The financial status of the medical profession became much weakened in 1883 by the introduction of the compulsory public sickness insurance (krankenkasse). The physician's salary for the immense amount of work required under this system is most inadequate; the insurance covers a large part of the population: workingmen, clerks and their families, and so on. At first the insured persons did not have the privilege of choosing their physicians but as a result of the efforts exerted by the "Verbande der Arzte Deutschlands" this has been changed and now the patients do have the privilege of selecting their physicians.
>
> In 1901 an unfortunate change was made in medical education over the protest of the medical profession. It is now no longer required to finish the gymnasium in order to be admitted to the medical school, thus lowering the general educational level of physicians. The number of medical students has increased excessively, and the number of female students has doubled since the war (female students were first admitted in 1898).

The book by Kujikawa is an expansion of a short history of Japanese medicine written in 1911, to which is added an essay bringing the history of medicine in Japan down to the present. The book is so condensed as to represent practically a chronology, which indeed is repeated in a special appendix. The concluding chapter on the recent history of Japanese medicine points out how great has been the Japanese contribution and how much it depends on the German medical education which most Japanese leaders had in the last generation. There are at present twenty-seven medical schools, including two for women, in Japan. There are eighteen class A medical schools, of which fifteen are under the control of the department of medical education.

The Anaemias. By Janet M. Vaughan, D.M., M.R.C.P., Assistant Clinical Pathologist, the Royal Northern Hospital. With notes on Normal and Pathological Erythropoiesis. By Hubert M. Turnbull, D.M., F.R.C.P., Director of the Bernhard Baron Institute of the London Hospital. Cloth. Price, $4. Pp. 248, with 24 illustrations. New York & London: Oxford University Press, 1934.

The author has attempted to review the present knowledge concerning the various forms of anemias and, in doing so, has successfully embodied all the pertinent data and information available at the time. H. M. Turnbull has contributed careful, intimate descriptions of the anatomy of normal erythropoiesis and of the pathologic anatomy of some of the anemias. The first chapter is devoted to discussion of the normal standard values and of normal erythropoiesis. To the reader it seems ambiguous to edit "mean corpuscular volume" and "mean corpuscular hemoglobin" as topics 4 and 5 respectively under the heading of "Infants" (page 7), for the standard figures given apply to the older and adult groups. Based on their etiology, the anemias are classified into four large groups: dyshematopoietic, posthemorrhagic, hemolytic and, finally, the unclassified anemias. The different forms of anemia are then discussed according to synonyms, definition, geographic distribution, race, sex, age hereditary factors, symptoms, clinical signs, blood picture, van den Bergh reaction, gastric analysis, pathologic anatomy, treatment, etiology and differential diagnosis. The authors believe that "leuko-erythroblastic anemia," a designation which they apply to the form occurring in carcinomatosis with deposits in the bones, in myelomatosis, in osteosclerosis and in Cooley's erythroblastic anemia, is not to be ascribed to crowding out of hematopoietic marrow by abnormal tissues; rather, they are inclined to believe that it may be a deficiency anemia. Acholuric jaundice is discussed at considerable length, twenty pages being devoted to it. Detailed description of the pathologic anatomy with necropsy reports on the marrow in six cases forms a large part of this section. Although the author considers liver therapy valueless, and while splenectomy remains the treatment of choice, recent reports point more favorably to the virtue of liver extract in cases in which splenectomy is contraindicated. Photomicrographs of the blood and of the marrow are conspicuous by their absence. To the general practitioner or to one not well grounded in hematology, such additions would prove of great assistance and would enhance the usefulness of this work. On page 29, discussing hypochromic anemia of infants, the author says "From experimental observations . . . it would appear that the

presence of anemia in the mother on a natural diet deficient in factors essential for erythropoiesis, especially iron, results in anaemia in the offspring." In man, however, Strauss and Castle (*Am. J. M. Sc.* **185**:539 [April] 1933) found that, no matter how anemic the mother is, the infant is born with normal hemoglobin and a normal erythrocyte count. Notwithstanding these few critical remarks, the author has indeed achieved her objective in an admirable fashion and has presented this great mass of literature in a concise, easy, lucid style. This work may be considered a worthy contribution to the field of hematology.

Surgery of a General Practice. By Arthur E. Hertzler, M.D., Chief Surgeon, Halstead Hospital, and Victor E. Chesky, M.D., Chief Resident Surgeon, Halstead Hospital. Cloth. Price, $10. Pp. 602, with 472 illustrations. St. Louis: C. V. Mosby Company, 1934.

The authors aim to reduce treatment to its simplest terms, recommending one time-tried measure for each lesion. They have paid special attention to the early recognition of lesions that may later become malignant. The contents include discussions on wounds and hemorrhage, general infection, nonsuppurative lesions, traumatic local infections, lesions of the scalp and cranium, diseases and injuries of the face, nose, nasal pharynx, trachea, ears, mouth, jaws, tongue, regions of the neck, chest, mammary glands, anal region, male and female genitalia, superficial injuries of the extremities, tumors of the extremities, infection, deformity, vascular lesions, gangrene and ulcers. Part III includes general surgical therapy; namely, surgical technic, closure of wounds, bandaging and general therapeutic measures. The illustrations are well chosen and well reproduced. The authors' statement that sciatica is a painful disorder of the sciatic nerve which has nothing to do with the sacro-iliac joint is definitely open to question. No mention is made of serum in the treatment of gas gangrene. The authors state that when the general practitioner cared for the ailing public there was no complaint about the high cost of hospital care. They have tried to make the book a practical one for the general practitioner.

L'opération de Bassini pour la guérison radicale de la hernie inguinale. Par le Docteur Attilio Catterina, professeur de médecine opératoire, Université de Gênes. Cloth. Pp. 57, with 16 illustrations. Paris: Librairie Félix Alcan, 1934.

This monograph is lavishingly illustrated with large colored plates, which were painted by Dr. Orazio Gaigher. The unusual combination of a surgeon able to paint has given a striking series of illustrations. The work consists solely of a description in minute detail of the technic of the Bassini operation for hernia. The author was a former pupil of Bassini and can speak with authority on his original technic, which has been modified only slightly. These modifications consist first of the resection of the covering of the cord in order to permit tighter closure of the ring. The only other departure from Bassini's original operation consists of the section of the transversalis fascia in the floor of the canal. In the text this is described as sutured down to Poupart's ligament, although in the illustrations the stitches are not shown to include the sectioned transversalis fascia. In the last twelve pages of the book there is a discussion of various complications of hernia or scrotal abnormalities that may be encountered when the inguinal canal is laid open and the operative measures taken for their cure. While this book is a valuable contribution to the library of the specialist, one cannot help but deplore the undue emphasis on the Bassini operation, which in the opinion of many surgeons today requires considerable modification to meet all the demands in the repair of various pathologic conditions encountered in different sorts of hernia.

Security Analysis. By Benjamin Graham, Investment Fund Manager; Lecturer in Finance, Columbia University, and David L. Dodd, Assistant Professor of Finance, Columbia University. Cloth. Price, $5. Pp. 725. New York: Whittlesey House, McGraw-Hill Book Company, Inc., 1934.

This is an interesting book of its type, and the authors appear to know their business. One of them seems to be experienced on the practical and the other on the theoretical side of finance and they have blended their ideas into a logical and coherent whole. They treat investment principles for all types of securities, from the best grades of government bonds down to the most speculative of common stocks. Also the book is replete with examples that back up their recommended standards of safety. Further, an attempt is made to show where the information needed for proper analyses may be found, and to give the reader some facility in the interpretation of balance sheets and income statements. To condense this material into a single volume, it was apparently necessary to assume that it would be read by those who have at least some knowledge of finance. Consequently, while the uninitiated may find in the book a good background for the discussion of securities, they must not hope that it will obviate the need of a consultant trained in this field. Probably the professional analyst will feel about this book much as the medical men felt about the "doctor book" so popular some years ago; in certain circumstances, a little knowledge is more dangerous than no knowledge at all.

A Textbook of Bacteriology with a Section on Pathogenic Protozoa. The Application of Bacteriology and Immunology to the Etiology, Diagnosis, Specific Therapy and Prevention of Infectious Diseases for Students and Practitioners of Medicine and Public Health. By Hans Zinsser, M.D., Professor of Bacteriology and Immunology, Harvard University Medical School, and Stanhope Bayne-Jones, M.D., Professor of Bacteriology, Yale University Medical School. Seventh edition. Cloth. Price, $8. Pp. 1226, with 174 illustrations. New York & London: D. Appleton-Century Company, 1934.

It will repay any one to read the nineteen page outline of the history and scope of bacteriology that is the opening chapter in this book. It takes one as it were to a mountain peak from which one sees the most prominent discoveries in this field of science without having the attention drawn to myriads of technical details. It takes one back to ancient days, when the rising of bread and the transformation of grape juice into wine excited wonder. It leads then to mere opinions and theories of the causes of disease, some of which later were proved correct, following the discovery of the compound microscope by Jansen in Holland and Galileo in Italy, early in the seventeenth century. Then Leeuwenhoek discovered bacteria and Pasteur completed his studies on fermentation and established the principles of scientific investigation, which have influenced research ever since. Then came the discoveries of Koch in Germany and of investigators in other countries regarding the causes of infectious diseases. Then came the discovery of porcelain filters, filtrable viruses and the toxicity of bacterial filtrates, out of which grew the science of immunology. The authors acknowledge their debt in writing this historical outline to Bulloch's History of Bacteriology, which they say is the most reliable and valuable account of the history of bacteriology. The remainder of the book is more than a textbook of bacteriology. It has been the authors' purpose to develop the work into a manual of infectious diseases. The two purposes have been held in just balance in the same volume. In rewriting and revising there has been some material omitted that was uncertain and a great deal of new material added. The present plan of the authors has made this work more helpful and of great practical value.

Le barbiturisme aigu et les antidotismes gardenal: strychnine, coramine, alcool. (Recherches expérimentales). Par G. Carrière, professeur de clinique médicale à la Faculté de médecine de Lille, Claude Huriez, chef de clinique médicale à la Faculté de médecine de Lille, et P. Willoquet. Paper. Price, 30 francs. Pp. 164, with illustrations. Lille: Imp. A. Durant, 1934.

This little volume deals with the clinical and pathologic symptoms of barbiturate poisoning, such as coma, fever, blood changes and tissue lesions. It is demonstrated that the toxic effects of barbiturates are not restricted to the central nervous system but that the heart, liver and kidneys, as well as other structures, are affected. In addition, the treatment of this intoxication by means of strychnine, coramine and alcohol is discussed. The literary data are collected and supplemented by observations from experiments on twenty laboratory animals. It is pointed out that the antagonism between barbiturate and strychnine is rather incomplete and irregular and that in certain phases, as for instance in regard to the heart, there may be some synergistic action; that the antagonism with coramine, on the other hand, is quite complete, and the dangers of untoward results less imminent. The authors suggest the possibility of using intravenous injections of 30 per cent alcohol in the treatment of barbiturate poisoning. For the efficiency of this treatment, some experimental data and clinical evidence are submitted.

Medicolegal

Workmen's Compensation Acts: Disability Following Administration of Antityphoid Inoculation Compensable.—The defendant company maintained in its mill a first aid station, with a trained nurse in charge. The nurse, among her other duties, administered antityphoid inoculations to employees. The plaintiff-employee in this case, Smith, suffered a paralysis of his left arm and serious and permanent impairment of his "shoulder and right side, abdomen, and hip," following the third injection of the "serum." He was denied compensation in proceedings brought under the workmen's compensation act of Louisiana and appealed to the court of appeals of Louisiana, second circuit.

Smith's right to compensation, said the court of appeals, depends on whether or not the disability following the third injection constituted an accidental injury that arose out of and in the course of his employment. The puncture of the skin with the hypodermic needle and the forcible injection into the system of the "serum" was an act of violence to the physical structure of the body. The act itself was contemplated but the results directly attributable to the act happened suddenly and were wholly unforeseen and unexpected. That the injection caused the disability was admitted, continued the court, but the medical testimony was in conflict as to whether the unfortunate results were attributable to an idiosyncrasy on the part of the employee or to injury to the musculospiral nerve. The court concluded, however, that there had been a destruction of the musculospiral nerve by the injection of the "serum" into the area of the nerve, causing direct injury and shock. This finding was based on the facts that the employee had felt a tingling sensation in his fingers within a few hours after the injection, because the paralysis developed within twelve hours thereafter, because of the absence of any rash or skin eruption, and because of the fact that no injurious effects followed the two previous injections.

The nurse in this case, said the court, was not employed by the company from any altruistic motives but because her presence and the services rendered by her were a direct benefit to the employer. Insurance rates were reduced thereby and loss of time from work by employees was minimized. The employee owed a duty to his employer to avail himself of the facilities offered to prevent illness and absence from work. A typhoid epidemic would have been disastrous to the industry. It was consequently in the interest of the employer to have administered to employees the antityphoid "serum." While the evidence shows, continued the court, that employees of the company were not ordered or required to take the inoculations at the mill, the wording of the notices that were posted may well have been interpreted by the average employee as such a requirement. The employee in this case testified that he understood that he was required to accept the treatment and that he was so told by the company physician. The court of appeals concluded, therefore, that the injury constituted an accidental injury arising out of and in the course of employment. Judgment was rendered accordingly for the employee. —*Smith v. Brown Paper Mill Co., Inc. (La.), 152 So. 700.*

Evidence: Admissibility of Testimony Based in Part on Roentgenograms Neither in Evidence Nor Identified.—In proceedings instituted under the Oklahoma workmen's compensation act, the employee called his attending physician, who testified that he had been unable to determine the nature and extent of the employee's injuries without roentgenograms and accordingly had sent him to another physician to have roentgenograms taken. The attending physician was not present when the roentgenograms were taken. The roentgenologist did not testify nor were the roentgenograms offered in evidence. The attending physician was permitted, over the objection of the employer, to testify as to the extent of the injuries, his testimony admittedly being based in part on examination of the employee and in part on examination of the roentgenograms. To review an award of compensation to the workman, the employer brought an action in the Supreme Court of Oklahoma.

The principle involved in this case, said the Supreme Court, is the same as the one that was involved in *Bartlesville Zinc Company* v. *Fisher,* 60 Okla. 139, 159 P. 476, wherein it was said:

> The admission of x-ray plates in evidence rests fundamentally on the theory that they are the pictorial communication of a qualified witness who uses this method of conveying to the jury a reproduction of the object of which he is testifying; this being true, the x-ray plates must be made a part of some qualified witness' testimony and the witness should qualify himself by showing that the process is known to himself to give correct representations and that it is a true representation of such object.

The problem in the Bartlesville Zinc Company case, continued the court, was whether the roentgenograms were admissible without proper identification. The question here presented is whether medical testimony based on roentgenograms was admissible in evidence in the absence of a showing that the roentgenograms were authentic. Obviously, the value of the testimony of the attending physician depended on whether or not the roentgenograms on which the testimony was partly based were authentic. No evidence being introduced to establish the authenticity of the roentgenograms, the testimony of the attending physician should not have been admitted. The Supreme Court accordingly vacated the award of compensation to the employee and directed the industrial commission to retry the claim.—*Southwestern Cotton Oil Co. v. State Industrial Commission (Okla.), 29 P. (2d) 122.*

Evidence: Opinion of Expert Based on Hypothetical Question Including Testimony of Other Witnesses.—The better practice, says the Court of Appeals of Maryland, is to incorporate in a hypothetical question all the facts on which an expert witness is asked to give an opinion. The hearing or reading of the testimony of other witnesses is accepted as an imperfect substitute for the formal hypothetical question in furnishing the data for inference by the expert witness. But it is clearly improper to admit an expert's conclusion based on the reading or hearing either of all or of a specified part of the testimony in the case if such whole or part is conflicting with respect to material facts. The reason is that, when there is a conflict of testimony on material facts, no conclusion can be reached by the expert witness until he first determines which of the facts in conflict are true, and in making that determination he must necessarily invade the province of the jury and pass on the credibility of witnesses and the weight of evidence. —*Quimby v. Greenhawk (Md.), 171 A. 59.*

Society Proceedings

COMING MEETINGS

Academy of Physical Medicine, New York, Oct. 30-31. Dr. Arthur H. Ring, 163 Hillside Avenue, Arlington, Mass., Secretary.

American Society of Tropical Medicine, San Antonio, Texas, November 14-16. Dr. Henry E. Meleney, Vanderbilt University School of Medicine, Nashville, Tenn., Secretary.

Association of American Medical Colleges, Nashville, Tenn., Oct. 29-31. Dr. Fred C. Zapffe, 5 South Wabash Avenue, Chicago, Secretary.

Central Association of Obstetricians and Gynecologists, New Orleans, Nov. 1-3. Dr. Ralph A. Reis, 104 South Michigan Boulevard, Chicago, Secretary.

Central Society for Clinical Research, Chicago, Nov. 2-3. Dr. Lawrence D. Thompson, 3720 Washington Boulevard, St. Louis, Secretary.

Inter-State Postgraduate Medical Association of North America, Philadelphia, November 5-9. Dr. W. B. Peck, 27 East Stephenson Street, Freeport, Ill., Managing-Director.

Omaha Mid-West Clinical Society, Omaha, Oct. 29-Nov. 2. Dr. Joseph D. McCarthy, 107 South 17th Street, Omaha, Secretary.

Pacific Coast Society of Obstetrics and Gynecology, Oakland and Del Monte, Calif., November 21-23. Dr. Clarence A. De Puy, 230 Grand Avenue, Oakland, Secretary.

Puerto Rico, Medical Association of, Santurce, Dec. 14-16. Dr. Julio R. Rolenson, Box 3403, Santurce, Secretary.

Radiological Society of North America, Memphis, Tenn., December 3-7. Dr. Donald S. Childs, 607 Medical Arts Building, Syracuse, N. Y., Secretary.

Southern Medical Association, San Antonio, Texas, November 13-16. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Southern Surgical Association, Sea Island, Ga., Dec. 11-13. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, St. Louis, December 7-8. Dr. Albert H. Montgomery, 122 South Michigan Boulevard, Chicago, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

28: 319-472 (Sept.) 1934

*Studies Relating to Time of Human Ovulation. R. Kurzrok, Irene J. Kirkman and Margaret Creelman, New York.—p. 319.
Nonconvulsive Types of Toxemias in Late Pregnancy. O. H. Schwartz, St. Louis.—p. 334.
Ventricular Cerebral Hemorrhage in the New-Born Infant: Pathologic and Etiologic Study of Twenty Cases. F. A. Hemsath, New York.—p. 343.
*Treatment of Uterine Hemorrhages Due to Benign Lesions, with Radium and Roentgen Rays. H. Schmitz, Chicago.—p. 355.
Value of Postoperative Roentgen Irradiation in Carcinoma of Ovary. J. B. Montgomery and J. T. Farrell Jr., Philadelphia.—p. 365.
Radium Methods and Statistics of Cancer of Cervix. H. S. Crossen, St. Louis.—p. 378.
Experience with Radiation Therapy in Cancer of Cervix. W. P. Healy, New York.—p. 386.
Primary Carcinoma of Fallopian Tubes. M. E. Kahn, Buffalo, and S. Norris, Toronto.—p. 393.
Treatment of Unilateral Urinary Fistulas by X-Ray Destruction of Kidney: Clinical and Experimental Study. N. P. Sears, Syracuse, N. Y.—p. 402.
Treatment of Fibroids: Report of Series of Four Hundred and Forty-Three Cases. W. C. Danforth, Evanston, Ill.—p. 409.
Need for Uniformity in Reporting Maternal Mortality and Morbidity Rates. H. J. Stander, New York.—p. 421.
Sympathoblastomas of Vagina (Two Cases). Margaret Castex Sturgis, Philadelphia.—p. 425.
Further Observations on Effect of Female Sex Hormone on Blood of the New-Born. J. C. Hirst, Philadelphia.—p. 431.
Chorionepithelioma of Uterus. T. C. Peightal, New York.—p. 435.
Avertin in Gynecology. R. B. Schutz, Kansas City, Mo.—p. 439.
Seasonal Trend in Conception of Malformations. W. F. Petersen, Chicago.—p. 443.
Treatment of Gonorrhea of Cervix. S. D. Breckinridge and A. J. Whitehouse, Lexington, Ky.—p. 445.
Pyelonephritis of Pregnancy Due to Bacillus Dysenteriae: Report of Case with Survey of Literature and Comment. G. R. Cheatham, Endicott, N. Y.—p. 448.
Unruptured Utero-Interstitial Pregnancy at Term. E. T. Hull, New York.—p. 452.
Full Term Tubal Pregnancy Removed at Operation Two Years After Expected Date of Confinement. H. W. Fink, Chicago.—p. 454.
Cephalothoracopagus (Double Monster). G. C. Finola, Chicago.—p. 455.
Terminal Ileitis Resembling Clinically Ovarian Cyst with Twisted Pedicle. C. Culbertson, Chicago.—p. 456.
Congenital Postnasal Polyp in the New-Born Causing Cyanosis. E. Habeck, Milwaukee.—p. 457.
Prolapse of Female Urethra. J. K. Ormond, Detroit.—p. 458.

Time of Human Ovulation.—Kurzrok and his associates observed the daily excretion of the follicle stimulating factor of the anterior pituitary-like principle in ten young women over extended periods of time. Sudden excretion of this hormone occurred at about the middle of the menstrual cycle and had a definite tendency to recur at about the same time in the following cycle. This sudden secretion of the principle from the anterior pituitary is considered to be the stimulus to the ovaries to induce ovulation. Evidence is given in support of the view that ovulation follows the excretion of the principle in about twenty-four hours. It is believed that ovulation cannot occur without this stimulus. The presence of this substance is not, however, evidence that ovulation has occurred. The time of ovulation as suggested by this method is in complete agreement with the results of all other methods used in the study of this problem. The greatest incidence of the excretion of the principle was between the tenth and thirteenth days and hence the greatest incidence of ovulation was between the eleventh and fourteenth days. One case suggests the possibility of menstruation without ovulation and another of ovulation without previous menstruation. Two of the patients thus studied who became pregnant while under observation show the early appearance of a positive Aschheim-Zondek test; on the twenty-fifth and twenty-seventh days from the onset of the last menstrual period, or two days before and one day after the expected onset of the next menstruation. The sudden conversion from a positive Aschheim-Zondek test to a positive follicle stimulating factor of the anterior pituitary-like principle reaction at the end of pregnancy is suggestive of a multiplicity of the gonadotropic hormones from the anterior pituitary.

Treatment of Uterine Hemorrhages with Radium and Roentgen Rays.—Among 433 cases of uterine hemorrhages due to benign causes and treated by radiation, Schmitz observed that about one fourth of the cases presented myomas, the youngest patient being 27 and the oldest 68. The greatest frequency is between 36 and 50 years of age. The radium dose that assures invariably complete amenorrhea is about 1,800 mg. element hours. When this dose was used, repetition of treatment was never necessary. If roentgen rays are used, the dose of 450 roentgens should be applied, through two fields at the seat of the ovaries. Diagnostic curettage should precede application of radiation in all cases. If presumptive signs of a malignant condition are present and microscopic diagnosis does not corroborate the clinical diagnosis, massive irradiations should be employed as recommended for radiation treatment of uterine carcinomas. The good end results of irradiation in myomas of the uterus were 90.14 per cent. The mortality in myomas was three. One patient died from a septic peritonitis, following dilation, curettage and radium insertion, and two cases showed malignant changes, one and three years afterward respectively, so that the entire mortality in the myomas was 2.48 per cent. Malignant manifestations after irradiation were seen in less than 1 per cent of the 433 cases. In the bleeding uterus, the good end results from radiation were 98.66 per cent. Radiation therapy is the method of choice in well selected, uncomplicated cases of uterine hemorrhages due to benign causes.

American Journal of Ophthalmology, St. Louis

17: 787-882 (Sept.) 1934

Biomicroscopy of Limbus Corneae in Trachoma and Other Conjunctival Diseases. P. Thygeson, Iowa City.—p. 787.
Primary Tumors of Optic Nerve: Report of Case. P. DeLong, Philadelphia.—p. 797.
Visual and Orthoptic Training. J. I. Pascal, New York.—p. 801.
Subconjunctival Iron Deposits After Adrenin Injections. T. Gunderson, Boston.—p. 807.
Cataract Extraction by Undetached Conjunctival Bridge Method After Preliminary Iridectomy: Fifty-Four Operations. R. O'Connor, San Francisco.—p. 809.
Chlorine Content of Aqueous, Vitreous and Serum: Comparative Study on Oxen. P. W. Salit, Iowa City.—p. 818.
Newer Knowledge of Bacteriology Applied to Ophthalmology. G. H. Gowen, Chicago.—p. 820.
Tangent Screen with Artificial Daylight Illumination. C. Berens, Dorothy Kern and B. F. Payne, New York.—p. 826.
Possibilities of Orthoptic Training: Further Report. G. P. Guibor, Chicago.—p. 834.
*Studies on Crystalline Lens: Rôle of Tetany in Parathyroid Cataract. Everette I. Evans, Chicago.—p. 840.

Crystalline Lens.—Evans thyroparathyroidectomized young dogs kept on a special bread-sour milk-liver diet for a month after weaning. Tetany was not seen to occur in any of the young dogs so treated. Examination of the lenses of these animals indicated that there was a characteristic change in the lenses of the young parathyroidectomized dog similar to that described by Goldmann. The chief difference between Goldmann's experiments and the author's is that Goldmann noted no lenticular change if tetany was not allowed to occur. In these dogs, characteristic lens changes occurred although no tetany was seen. So far as the author can determine, these experiments offer conclusive evidence that the tetany which usually occurs during a state of parathyroid deficiency plays no part in the development of the cataract. The toxin theory of parathyroid deficiency presented by Luckhardt and by Dragstedt is not popular, because of the seemingly overwhelming evidence in favor of the calcium theory. Nevertheless, the author believes that in the search for the cause of parathyroid and senile cataract one should pay more attention to the possible rôle of toxins. It is difficult to understand how glutathione could have disappeared partially from these cataractous lenses unless toxins do play a part in parathyroid deficiency.

employer brought an action in the Supreme Court of Oklahoma.

Montgomery, 122 South Michigan Boulevard, Chicago, Secretary.

American Journal of Public Health, New York

24: 925-1004 (Sept.) 1934

Epidemic Cerebrospinal Meningitis in China. W. W. Cadbury, Canton, China.—p. 925.
Relation of Soil Fertilization with Superphosphates and Rock Phosphate to Fluorine Content of Plants and Drainage Waters. E. B. Hart, P. H. Phillips and G. Bohstedt, Madison, Wis.—p. 936.
Should Public Health Administrative Practice Include Medical Relief Activities? J. J. Sippy, Stockton, Calif.—p. 941.
Dermatitis in Oil Refining Industry. L. Schwartz, New York.—p. 948.
What Can We Learn from Child Health Conditions in Europe? R. A. Bolt, Cleveland.—p. 951.
Nutritional Aspects of Milk Pasteurization. E. V. McCollum, Baltimore. —p. 956.
Studies in Ventilation: I. Skin Temperature as Related to Atmospheric Temperature and Humidity. E. B. Phelps and A. Vold, New York.—p. 959.
Storage Battery Plants, New York State, 1933. J. D. Hackett, Albany, N. Y.—p. 971.

Archives of Surgery, Chicago

29: 337-526 (Sept.) 1934

Removal of Cerebellopontile (Acoustic) Tumors Through Unilateral Approach. W. E. Dandy, Baltimore.—p. 337.
Myokinetic Studies of Transplanted Muscles About the Knee. T. H. Vinke, Cincinnati.—p. 345.
Intussusception in Infancy and Childhood: Report of Three Hundred and Seventy-Two Cases. W. E. Ladd and R. E. Gross, Boston.—p. 365.
*Influence of Local Excess of Calcium and Phosphorus on Healing of Fractures: Experimental Study. K. O. Haldeman and J. M. Moore, San Francisco.—p. 385.
Comparative Value of Intravenous Sclerosing Substances. A. Ochsner and H. Mahorner, New Orleans.—p. 397.
*Thoracogenic Scoliosis: Influence of Thoracic Disease and Thoracic Operations on the Spine. J. D. Bisgard, Omaha.—p. 417.
Healing of Fractures: Its Influence on Choice of Methods of Treatment. C. R. Murray, New York.—p. 446.
Quantitative Study of Rate of Healing in Bone: II. Normal Rate of Healing. W. T. Peyton, W. Copenhaver and L. Arey, Minneapolis. —p. 465.
Ambulatory Treatment of Varicose State by Combined Ligation and Thrombosis by Injection: Study in End Results. N. J. Howard, San Francisco.—p. 481.
Thyroid Disorders: VI. Suprarenal Factor in Reactions to Thyroidectomy. E. Goetsch and A. J. Ritzmann Jr., Brooklyn.—p. 492.
Fifty-Fourth Report of Progress in Orthopedic Surgery. J. G. Kuhns, E. F. Cave, S. M. Roberts and J. S. Barr, Boston; J. A. Freiberg, Cincinnati; J. E. Milgram, New York, and R. I. Stirling, Edinburgh, Scotland.—p. 511.

Influence of Calcium and Phosphorus on Healing of Fractures.—Haldeman and Moore used monocalcium, tricalcium and dicalcium phosphate and calcium glycerophosphate in determining the effect of a local excess of calcium and phosphorus in the healing of fractures of the radii in seventeen rabbits. Healing was delayed in five and uninfluenced in seven; two rabbits died in the first week after operation, and in three, in which tricalcium phosphate was added, the healing was delayed on both sides, although complete union eventually resulted on the treated side, while the control defects went on to typical nonunion. The reason for this delay is not apparent. However, the conclusion seems justified that in certain cases of delayed union tricalcium phosphate is an aid to union. None of the calcium and phosphorus compounds used in excess seemed capable of accelerating the normal rate of healing. In this respect the results fail to follow the well recognized chemical law that increasing the concentration of the reacting substances speeds up the reaction. Because of this fact, it is probable that the process of ossification is more than the purely chemical equation which certain authors describe.

Thoracogenic Scoliosis.—Bisgard presents a study of the influence on the spinal column of thoracic disease in 518 cases and of the surgical operative treatment of thoracic disease in 336 cases. While lateral deviations of the thoracic spine had developed in a large proportion of the cases in both groups, in only eleven cases were the deviations great enough to give rise to a deformity of major clinical importance. Deforming curvatures occurred in only a few cases with extensive chronic pleuritis and in an occasional case in which successful treatment necessitated an extensive Schede thoracoplasty or lobectomy. These deformities occurred only in children and young adults. Most pleural scolioses may be prevented by the early cure of the pleural disease and by constant maintenance of correction or overcorrection of the spine by postural wedging. Also, many instances of thoracoplasty scolioses may be prevented by constantly wedging the spine straight until it becomes fixed. For the control and treatment of certain severe and progressive curvatures, internal fixation by fusion of the vertebral column is recommended. Every patient less than 20 years of age who has had chronic infection of the pleural cavity or has been treated by extensive thoracoplastic operations should be observed frequently for at least a year, and, if the curvature shows a tendency to progress despite conservative treatment, the spine should be fused to prevent the development of a severe deformity.

California and Western Medicine, San Francisco

41: 145-216 (Sept.) 1934

Hypertension: Rôle of Infections Therein. J. T. King Jr., Baltimore. —p. 145.
Cancer of Stomach. J. H. Woolsey, Woodland.—p. 148.
Roentgenologic Changes in Malacic Disease of Bone. J. D. Camp, Rochester, Minn.—p. 152.
Reaction Following Blood Transfusion: Report of Unusual Case. C. E. Smith and J. O. Haman, San Francisco.—p. 157.
Deafness: Its Humanitarian Problems: Plea to Otologists. G. E. Coleman, San Francisco.—p. 161.
Contused Injuries of Peripheral Nerves: Value of Early Surgical Treatment. H. A. Brown, San Francisco.—p. 166.
Treatment of Trichomonas Vaginitis. S. M. Gospe, San Francisco.—p. 172.
Child Guidance and Mental Hygiene. A. R. Timme, Los Angeles.—p. 174.
Compulsory Health Insurance. F. L. Hoffman, Philadelphia.—p. 177.

Canadian Public Health Journal, Toronto

25: 359-410 (Aug.) 1934

Development of Public Health in British Columbia. J. T. Marshall, Victoria, B. C.—p. 359.
Value of Accurate Statistics in Study of Cancer. Madge Thurlow Macklin, London, Ont.—p. 369.
Slaughter Houses and Their Evils. A. R. B. Richmond, Toronto.—p. 374.
Survey of Health Habits Among School Age Children. J. T. Phair, Toronto.—p. 380.

Florida Medical Association Journal, Jacksonville

21: 89-134 (Sept.) 1934

Fractures in Region of Elbow. A. H. Weiland, Coral Gables.—p. 99.
*Perineorrhaphy. G. H. Edwards, Orlando.—p. 101.
Prevention of Puerperal Infection. L. L. Dozier, Tallahassee.—p. 106.

Perineorrhaphy.—Edwards, in repairing the lacerated perineum, has the upper part of the vagina well packed with gauze and the lower part of the vagina and the perineum prepared by the use of an antiseptic solution. An incision is made on each side of the laceration into the mucocutaneous border, extending outward to a point of election. A flap of the vaginal mucosa is dissected, with avoidance of any buttonholing, above the point where the levator ani fibers first meet in the rectovaginal septum. The vaginal flap is not only held at its edge by Allis clamps, so as to inflict little contusion, but is steadied by the fingers of the hand holding the clamp and a thin flap is attempted by the use of scissors and gauze on the fingers of the right or left hand. The muscular bands are picked up, preferably with the fascia, and brought together in firm approximation. The tenacula grasp these muscles or fascial edges at the points of election and number 2 chromic gut is passed deeply into them and a figure of eight suture is made after the technic of Holden. The suture does not embrace the skin. One interrupted or figure of eight suture is placed high above the point of the usual appearance of a rectocele. A continuous chromic suture is passed back and forth from one side to the other; deep bites of the perineal tissue are taken; it is drawn firmly together, and a thick heavy new perineum is built up. Usually a portion of the redundant vaginal flap is excised and continuous number 1 chromic gut is placed in the mucosa beginning at the upper angle, every second bite taking up a portion of the newly acquired perineal body so as to prevent any dead space, and is tied at the former mucocutaneous margin. One silkworm gut suture is inserted deeply into the face of the perineum, one-third inch from the edge of the incision, entirely surrounding the mass of tissue held by chromic gut sutures and coming out on the opposite side again one-third inch from the edge, and a single knot of four or five turns, placing a bar across the line of suture, is tied judiciously to avoid enough pressure to cut into the skin of the perineum. Two, three or four metal clips approximate the skin. The clips may be removed in from five to seven days, while the silkworm gut may remain from seven to ten days.

Illinois Medical Journal, Oak Park

66: 201-300 (Sept.) 1934

Generalizations Concerning Heart Disease. R. B. Preble, Chicago.—p. 219.
Whither Goest Thou? C. G. Farnum, Peoria.—p. 223.
Facilities for Teaching Legal Medicine to Students in Chicago. S. A. Levinson and C. W. Muehlberger, Chicago.—p. 228.
*Cow's Horn for Fixation of Fractures: Its Stimulating Effect on Callus Formation and Simplified Technic. E. B. Fowler, Evanston.—p. 231.
Rôle of Hypophysis in Thyroid Syndromes. H. R. Rony, Chicago.—p. 234.
Why the Medical Commission? T. B. Williamson, Mount Vernon.—p. 239.
Use of Base in Prism in Treatment of Myopia. P. A. Graves and O. B. Nugent, Chicago.—p. 241.
Indigent Relief. C. Bennett, Champaign.—p. 246.
Efficiency of Orthoptic Training in Strabismus. J. L. Bressler and Katherine H. Chapman, Chicago.—p. 249.
Allergic Management of Vasomotor Rhinitis. M. Zeller, Chicago.—p. 255.
Early, Diagnosis of Pulmonary Tuberculosis. J. E. McCorvie and M. Pollak, Peoria.—p. 259.
Allergy in General Practice. S. M. Feinberg, Chicago.—p. 264.
Pneumothorax Treatment of Lobar Pneumonia. H. J. Isaacs, I. C. Udesky and A. DePinto, Chicago.—p. 267.
And What Happened After Employee's Accident? K. Garve, Los Angeles.—p. 270.
Surgical Complications of Peptic Ulcer. R. C. Sullivan, Chicago.—p. 276.
Results of Glandular Therapy in Mongolian Idiots. I. N. Radeff, Dixon.—p. 279.
Infant Nutrition: Some Principles for Infants and Adults. J. R. Gerstley, Chicago.—p. 280.
High Voltage (200 KV) Versus Super Voltage (700 KV) X-Ray Treatment of Carcinoma. R. T. Pettit, Ottawa.—p. 283.
Fundamentals of Infant Feeding. C. G. Grulee, Chicago.—p. 288.
Treatment of Fractures of Lower Limb by Fixed Traction. C. Papik, Chicago.—p. 292.

Cow's Horn for Fixation of Fractures.—Fowler employed cow's horn in nine patients who required open reduction with fixation. Prompt abundant callus and bony union occurred without complications. An incision was made somewhat to the side of the fracture selected for the drill hole. A good sized hole was drilled carefully through the cortex into the medullary channel at a distance of from 1 to 3 inches from the fracture. The hole was then reamed obliquely toward the fracture so that the horn could be passed or gently driven through the oblique hole along the medullary canal well beyond the fracture. Usually the medullary spaces require some reaming before the horn can be passed into the medullary canal and well beyond the break. The distance necessary will vary from one to several inches, depending on the size and length of the bone involved. In the thirty cases, including the author's, in which horn has been used for internal fixation of fractures, it seems to have been an ideal material for strength, elasticity, absorbability and ease of sterilization. In addition it was found to be nonirritating, mildly bactericidal and stimulating to callus growth. The author believes that his simplified technic diminishes trauma and shock.

Journal of Biological Chemistry, Baltimore

106: 431-814 (Sept.) 1934. Partial Index

Vital Need of Body for Certain Unsaturated Fatty Acids: VI. Male Sterility on Fat-Free Diets. H. M. Evans, S. Lepkovsky and Elizabeth A. Murphy, Berkeley, Calif.—p. 445.
Modification of Method for Determining Methionine in Proteins. H. D. Baerstein, Madison, Wis.—p. 451.
Studies of Acidosis: XXII. Application of Henderson-Hasselbalch Equation to Human Urine. J. Sendroy Jr., S. Seelig and D. D. Van Slyke, New York.—p. 463.
Studies on Oxidation Reduction: XXI. Phthiocol, Pigment of Human Tubercle Bacillus. E. G. Ball, Baltimore.—p. 515.
Vitamin C Content of Human Tissues. M. Yavorsky, P. Almaden and C. G. King, Pittsburgh.—p. 525.
Effects of Moderate Doses of Viosterol and of Parathyroid Extract on Rats. Agnes Fay Morgan, Louise Kimmel, Rachel Thomas and Zdenka Samisch, Berkeley, Calif.—p. 531.
Monoacetone d-Xyloketose: Preliminary Note. P. A. Levene and R. S. Tipson, New York.—p. 603.
Study on Keratin. D. R. Goodard and Leonor Michaelis, New York.—p. 605.
Extraction Studies on Adrenal Cortical Hormone: I. Methods of Preparation. J. J. Pfiffner, H. M. Vars and A. R. Taylor, Princeton, N. J.—p. 625.
Zinc Hydroxide Powder for Preparation of Protein-Free Filtrates of Blood. T. V. Letonoff, Philadelphia.—p. 693.
Influence of Removal of Parathyroid Glands on Development of Rickets in Rats. J. H. Jones, Philadelphia.—p. 701.
Lipids of Milk: I. Fatty Acids of Lecithincephalin Fraction. F. E. Kurtz, G. S. Jamieson and G. E. Holm, Washington, D. C.—p. 717.
Availability of Copper in Various Compounds as Supplement to Iron in Hemoglobin Formation. M. O. Schultze, C. A. Elvehjem and E. B. Hart, Madison, Wis.—p. 735.
Micromethod for Determination of Free and Combined Cholesterol. R. Schoenheimer and W. M. Sperry, New York.—p. 745.
Synthesis of Hexuronic Acids: VII. Synthesis of l-Glucuronic Acid and Resolution of dl-Galacturonic Acid. C. Niemann and K. P. Link, Madison, Wis.—p. 773.
Ultramicromethod for Determination of Oxygen Content of Blood. J. S. Donal Jr., Philadelphia.—p. 783.

Journal of Pharmacology & Exper. Therap., Baltimore

52: 1-120 (Sept.) 1934

Pharmacologic and Toxic Action of Digoxin. A. C. White, Beckenham, Kent, England.—p. 1.
Effect of Epinephrine on Excised Terrapin Sino-Auricular and Auricular Apex Strips: Note. C. M. Gruber, Philadelphia.—p. 23.
Ethyl Alcohol and Strychnine Antagonism. H. Gold and Janet Travell, New York.—p. 30.
Quantitative Studies on Absorption and Excretion of Certain Resorcinols and Cresols in Dogs and Man. B. H. Robbins, Nashville, Tenn.—p. 54.
Acetyl-β-Methyl Choline: Note. R. Hunt, Boston.—p. 61.
Studies on Barbiturates: IV. Effect of Barbiturates in Experimental Nephrosis. W. S. Murphy and T. Koppanyi, Washington, D. C.—p. 70.
Id.: V. Action of Barbiturates in Sauropsida. T. Koppanyi, W. S. Murphy and P. L. Gray, Washington, D. C.—p. 78.
Id.: VI. Elimination of Iso-Amylethyl Barbituric Acid ("Amytal") and N-Butylethyl Barbituric Acid ("Neonal"). T. Koppanyi and S. Krop, Washington, D. C.—p. 87.
Id.: VII. Experimental Analysis of Barbital Action. T. Koppanyi and J. M. Dille, Washington, D. C.—p. 91.
Some Physiolgoic Properties of Certain N-Methylated-β-Phenylethylamines. A. M. Hjort, Tuckahoe, N. Y.—p. 101.
*Comparative Effects of Intravenous Administration to Man of Acetylcholine and Acetyl-β-Methylcholine. Soma Weiss and L. B. Ellis, Boston.—p. 113.

Comparative Effects of Intravenous Administration of Acetylcholine and Acetyl-Beta-Methylcholine.—Weiss and Ellis state that the general and the cardiovascular responses in normal human subjects to the continuous intravenous infusion of acetylcholine and acetyl-beta-methylcholine are similar, but that the latter drug is approximately 200 times as potent as the former. Both compounds can be infused at a rate producing definite symptoms for prolonged periods without evidence of cumulative action. The velocity of the blood flow remains essentially unchanged during the intravenous administration of varying amounts of each substance sufficient to produce effects varying from minimal to marked. These observations indicate that the cardiac output can be measured with the acetylene method under the conditions described.

Michigan State M. Society Journal, Grand Rapids

33: 479-532 (Sept.) 1934

Treatment of Intestinal Obstruction. C. R. Davis, Detroit.—p. 496.
Newer Methods of Treatment in Syphilis of Childhood. A. R. Woodburne, Grand Rapids.—p. 503.
Medical Participation in Public Health. S. Pritchard, Battle Creek.—p. 508.
Pitfalls in X-Ray Diagnosis of Bronchiectasis with Iodized Oil Injections. C. K. Hasley and W. A. Hudson, Detroit.—p. 511.
Arsenic Paste in Cancer of Skin. C. K. Valade, Detroit.—p. 513.
*Study of Neurocirculatory Instability. Ruth Herrick, Grand Rapids.—p. 516.
Pseudosyphilides of Infancy (Napkin Eruptions): Case Reports. D. O. Poth, Ann Arbor.—p. 518.

Neurocirculatory Instability.—Herrick applies the designation of neurocirculatory instability to a heterogeneous group of organically normal people presenting diversified skin conditions: neurodermatitis, dyshidrosis, urticaria and pruritus of the anus and vulva, that is, diverse skin conditions, the common element of sympathetic nervous system maladjustment creating excessive pruritus. These people are of the type who exhaust the reserves of nervous energy and show this fatigue. In such patients local treatment is only palliative, and permament relief is obtained by aiding each person to solve his own situation by frankly understanding the cause and the factors involved, and, in addition to local therapy, presenting for his acceptance a logical program of daily relaxation. This is not easy, but usually patients of this group are intelligent and have passed from doctor to doctor with much futile local therapy, and they do respect a thoughtful analysis of their problems. Many such patients have no demonstrable pathologic condition

but have lived for years under exhausting nervous tension and some time in their career the weakest link has given way. Neurocirculatory instability is a functional diagnosis.

Minnesota Medicine, St. Paul

17: 501-562 (Sept.) 1934

Progress in 1934. F. J. Savage, St. Paul.—p. 501.
Diabetes in Minnesota. W. A. Stafne, Rochester.—p. 503.
Diabetic Deaths in Duluth: Statistical Study. E. C. Bartels, Springfield, Ill., and B. Blum, Rochester.—p. 512.
Surgery in Diabetes. W. Walters, H. W. Meyerding, E. S. Judd and R. M. Wilder, Rochester.—p. 517.
Spontaneous Hypoglycemia. J. F. Briggs, St. Paul.—p. 526.
Laboratory Technician. K. Ikeda, St. Paul.—p. 534.
Accessory Scaphoid. P. W. Giessler, Minneapolis.—p. 537.
Simplified Method of Uvula Amputation. G. M. Koepcke, Minneapolis.—p. 540.

Nebraska State Medical Journal, Lincoln

19: 321-360 (Sept.) 1934

*What Does Primary Tuberculous Infection Prevent? C. A. Stewart, Minneapolis.—p. 321.
Federal Funds for Physicians Rendering Services to the Indigent. B. F. Lorance, Auburn.—p. 325.
Pulsion Esophagopharyngeal Diverticula. W. J. Arrasmith, Grand Island.—p. 330.
Idealism in Medical Profession. E. G. Zimmerer, Lincoln.—p. 333.
Abdominal Hodgkin's Disease: Case Report. J. M. Neely, Lincoln.—p. 336.
Thyroid Disease Complicated by Pregnancy: Report of Two Cases. H. E. Harvey, G. W. Covey and C. Andrews, Lincoln.—p. 339.
Progress of Surgery: Review of Literature of First Half of 1934. H. H. Davis, Omaha.—p. 343.
Electric Arc Welding: Etiologic Factor in Aplastic Anemia. O. C. Nickum, Omaha.—p. 347.

Primary Tuberculous Infection.—Stewart's concept relative to the evolution of tuberculosis in the human lung from the first infective phase to the final stage of far advanced phthisis implies that the first infection makes possible rather than prevents the development of the adult type of tuberculosis. When other serious reinfective forms of the disease are considered, these conditions, which develop as the result of the discharge of bacilli from preexisting primary foci of disease, are seen to be caused often by the dissemination of direct descendants of the initial infective dose of tubercle bacilli that entered the body. There is no form of tuberculosis to which man is susceptible that is prevented by the first invasion of the tissues by tubercle bacilli. In fact, the primary infection is the first step along the path which leads too often to the development of all the serious reinfective varieties of tuberculosis that menace the human race. As a result of several years' study the Lymanhurst staff considers a negative tuberculin reaction superior to a positive one and looks on the nonallergic, uncontaminated person as occupying a more advantageous position than is possessed by infected patients so far as future experiences with tubercle bacilli are concerned. The prediction is ventured that in the near future an initial infection with tubercle bacilli will be generally accepted as a hazardous liability rather than a protective asset, and a deeper appreciation will arise relative to the soundness and value of campaigns fostered by national, state and local tuberculosis associations directed toward the prevention and control of tuberculosis.

New England Journal of Medicine, Boston

211: 431-478 (Sept. 6) 1934

Clinical Interpretation of the Electrocardiogram. L. M. Hurxthal, Boston.—p. 431.
Certain Aspects of Bronchiectasis, with Especial Reference to Diagnosis and Treatment. F. T. Lord, Boston.—p. 437.
Studies in Agranulocytosis: IV. Report of Two Cases of Agranulocytosis Following Use of Dinitrophenol. W. Dameshek and S. L. Gargill, Boston.—p. 440.
Purpura Hemorrhagica with Profuse Bleeding from Mucous Membranes Following Treatment of Syphilis with Bismarsen. J. L. Grund, Boston.—p. 443.
Studies in Tuberculin Reactions: Scarification, Multiple and Single Puncture Technic. E. Friedman and J. B. Hawes 2d, Boston.—p. 446.
Spontaneous Meningeal Hemorrhage: Case Report. R. C. Eley, Boston.—p. 449.
Essential Public Health Services. K. Emerson, New York.—p. 451.
Foreign Body in Arm. J. W. Sever, Boston.—p. 456.
Regional Ileitis: Case. K. T. Phillips, Putnam, Conn.—p. 457.
Medical Secretary Curriculum at Westbrook Junior College, Portland, Maine. Ruth E. Irwin, Portland, Maine.—p. 458.

New York State Journal of Medicine, New York

34: 751-788 (Sept. 1) 1934

Relations of Increta of Adenohypophysis to Clinical Disturbances of Growth, Development and Other Physiologic Functions. L. F. Barker, Baltimore.—p. 751.
Obstructive Uropathy: Obstructions to Upper Urinary Tract. F. N. Kimball, New York.—p. 756.
Id.: Obstructive Uropathy, Pertaining to Bladder. J. N. Vander Veer, Albany.—p. 762.
Id.: Urethral. A. H. Paine, Rochester.—p. 768.
Prevention of Hard of Hearing. F. J. O'Connor, Syracuse.—p. 771.
Biopsychic Approach to Diseases of the Mind: Its Dependence on Neurology and General Medicine. F. Kennedy, New York.—p. 777.
Plastic Surgery in Removal of Excessive Cutaneous Tissues Obstructing Vision. K. Kahn, New York.—p. 781.

Northwest Medicine, Seattle

33: 301-342 (Sept.) 1934

Carbon Monoxide Poisoning. H. M. F. Behneman, San Francisco.—p. 301.
Some of Newer Local and General Anesthetic Agents: Methods of Their Administration. J. S. Lundy and R. M. Tovell, Rochester, Minn.—p. 308.
*Some Chemical Secrets of Subarachnoid Space During Spinal Novocain Anesthesia. G. R. Vehrs, Salem, Ore.—p. 311.
Use of Narcotics in Washington. J. E. Hunter, Seattle.—p. 319.
Functional Uterine Hemorrhage, with Especial Reference to Hyperplasia Endometrii and Relation to Menstruation: Consideration of Its Etiology, Treatment. K. H. Martzloff, Portland, Ore.—p. 322.
Mucocele of Appendix: Report of Two Cases. R. F. Peterson, Butte, Mont.—p. 328.
Mastoiditis with Facial Paralysis in Infant. G. C. Saunders, Portland, Ore.—p. 330.
Erysipeloid: Report of Case. S. E. Light, Tacoma, Wash.—p. 331.
Coarctation of the Aorta. J. F. Beatty, Everett, Wash.—p. 332.

The Subarchnoid Space During Procaine Hydrochloride Anesthesia.—Vehrs believes that the use of the lateral recumbent and flexed posture is superior to the dorsal decubitus in fixing nerves with procaine hydrochloride, because in this posture the dural sac has no obstructing curvatures, while in the latter the dural sac has varying lumbosacral curvatures. The fixation of nerves and diffusion by procaine hydrochloride is so well controlled through the use of this method that it deserves a critical study and a continued usage. Deprocainization by aspiration of the spinal fluid from the dural sac attenuates the subarachnoid concentration of the procaine and lessens the time of nerve block. The spinal fluid that is removed in deprocainization of the dural sac permits procaine free fluid from above to attenuate further the remaining procainized fluid. A study of the chemistry of anesthetic drugs in the spinal and cisternal fluid is necessary to establish their safety and to act as a control in establishing the proper methods of administration. A study of the lumbosacral curvatures will assist one in the control of nerve block in the use of dorsal decubitus.

Southern Surgeon, Atlanta, Ga.

3: 165-250 (Sept.) 1934

Study of Cervical Erosion and Its Relation to Cancer. P. C. Schreier, Memphis, Tenn.—p. 165.
Pathologic Physiology of Liver and Gallbladder: Five Points in Surgery of Gallbladder and Ducts. G. Crile, Cleveland.—p. 171.
Perineal Repair. W. C. Jones, Miami, Fla.—p. 181.
Precepts in Traumatic Surgery. J. J. Moorhead, New York.—p. 189.
Diagnosis of Surgical Hyperinsulinism. S. Harris, Birmingham, Ala.—p. 199.
Surgery in Treatment of Hyperinsulinism. H. E. Simon, Birmingham, Ala.—p. 211.
Recognition, Surgical Treatment and Prognosis of Organic Lesions of Large Bowel. F. W. Rankin, Lexington, Ky.—p. 227.
Anatomic Importance of Fascia in Abdominal Wall. A. O. Singleton, Galveston, Texas.—p. 235.

West Virginia Medical Journal, Charleston

30: 385-432 (Sept.) 1934

Coronary Disease. G. R. Maxwell, Morgantown.—p. 385.
Acute Appendicitis. W. R. Laird, Montgomery.—p. 393.
Occiput Posterior Presentations: Their Diagnosis and Treatment. W. W. Point, Charleston.—p. 399.
Diagnosis and Treatment of Acute Poliomyelitis. J. L. Blanton, Fairmont.—p. 403.
Child Hygiene in Coal Mining Community. G. Fordham, Powellton.—p. 408.
Cisterna Magna Puncture: Its Technic and Uses. R. B. Easley, Huntington.—p. 411.
Do Normal Cells Change to Cancer Cells Under Hormone Influence? P. Jaisohn, Media, Pa.—p. 414.
Prenatal Care. E. J. Humphrey, Huntington.—p. 416.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

15: 193-286 (Aug.) 1934

Choline and Liver Fat. D. L. MacLean and C. H. Best.—p. 193.
Envelop Antigen of Bacillus Pestis and Its Antibody. H. Schütze.—p. 200.
Existence of Growth-Promoting and Growth-Inhibiting Properties (in Vitro) of Serums and Plasma of Mice Naturally Immune or with Acquired Resistance to Tar Sarcoma. F. C. Pybus and E. W. Miller.—p. 207.
Effect of Malignant Tumors on Hypophysis. C. S. McEuen, H. Selye and D. L. Thomson.—p. 221.
Growth of Walker Rat Tumor in Young and Old Animals. C. S. McEuen and D. L. Thomson.—p. 224.
*Hypervitaminosis D Rickets: Action of Vitamin D. A. W. Ham and M. D. Lewis.—p. 228.
*Possible Influence of Injury in Genesis of Tumors of Gonads: Experimental Study. R. A. Willis.—p. 234.
Purification of Tuberculin. G. A. C. Gough.—p. 237.
Developmental Forms of Psittacosis Virus. S. P. Bedson and J. O. W. Bland.—p. 243.
Studies on B Virus: I. Immunologic Identity of Virus Isolated from Human Case of Ascending Myelitis Associated with Visceral Necrosis. A. B. Sabin.—p. 248.
Id.: II. Properties of Virus and Pathogenesis of Experimental Disease in Rabbits. A. B. Sabin.—p. 268.
Cortical Lipoid of Suprarenal in Mice (1) with Infectious Ectromelia, (2) in Starvation, (3) Exposed to Heat and (4) Fed on Cholesterol. R. Whitehead.—p. 279.

Vitamin D in Hypervitaminosis D Rickets.—Ham and Lewis observed that young rats receiving daily large doses of vitamin D showed rachitic lesions in their long bones after three weeks. As the matrix which formed in the bones during the experiment was calcified poorly, it was concluded that the administration of large amounts of vitamin D inhibited the normal calcification process in bone. As osteoclasts did not form a prominent part in the histologic picture, the poor calcification of bone could not be attributed to them. The authors explain the phenomena observed in their experiment by the theory which considers that vitamin D acts by increasing in some way the attraction of the blood for calcium. The results are compatible with, although they do not support directly, the theory that vitamin D acts through the intermediary of the parathyroid mechanism to control a fraction of the serum calcium.

Influence of Injury in Genesis of Tumors of Gonads.—Willis carried out experiments on the testicles and ovaries of rats to determine by some form of traumatic or chemical stimulation whether it was possible to evoke teratomatous growth in gonadal tissue. He reasoned that if this was possible his experiments would provide evidence in favor of the view that teratomas are the products of some kind of parthenogenic or ephebogenic proliferation of germ cells. The experiments on male rats consisted of injections into the testicles through a hypodermic needle. In female rats the ovaries were reached through a midline laparotomy. Oxidizing, reducing, coagulating and necrosing agents as well as simple mechanical trauma, the introduction of silica and the introduction of blood were employed. The animals were kept for periods ranging from twenty-five to thirty-five weeks thereafter. The changes observed in the damaged organs were those of necrosis and its sequelae; no tumors appeared. The experiments afford no evidence that local injury is capable of evoking neoplasia in gonadal tissue. The result obtained served to strengthen the suspicion that injury and inflammatory processes play no more than a coincidental part in the histories of patients with testicular or ovarian tumors.

East African Medical Journal, Nairobi

11: 141-176 (Aug.) 1934

Intentional Improvement of Backward Tribes. H. L. Gordon.—p. 143.
Significance of Splenic Enlargement in East Africa. D. B. Wilson and Margaret E. Wilson.—p. 156.
Plasmodium Ovale in an East African Native: Case. H. D. Tonking.—p. 166.

Glasgow Medical Journal

4: 41-88 (Aug.) 1934

Place of Neurotic Symptoms in Physical Disease. R. S. Gibson.—p. 41.
Madness in Literature and Life. H. C. Marr.—p. 49.

Indian Medical Gazette, Calcutta

69: 421-480 (Aug.) 1934

Malarcan in Treatment of Indian Strains of Malaria. R. N. Chopra, B. Sen and S. K. Ganguly.—p. 421.
Glabellar Presentation, Its Incidence and Termination. A. L. Mudaliar.—p. 424.
Tinea Imbricata (Tokelau) in Bengal. H. W. Acton and L. M. Ghosh.—p. 426.
Hot Weather Ear: Clinical Entity. F. J. Palmer.—p. 430.
"Backdoor Drainage": Antimalarial Measure Designed to Meet Particular Physiographic Situation in Sylhet District, Assam. C. Strickland and D. Gibson.—p. 432.
Antimalarial Work on Group of Tea Estates in South Sylhet. R. A. Murphy.—p. 437.
Form of Generalized Edema Attended with Malnutrition Which Is Becoming Increasingly Common in Rangoon. M. L. Kundu.—p. 439.
Diagnostic Significances of Urobilinuria in Cases of Pyrexia. J. R. Dogra.—p. 440.

Journal of Laryngology and Otology, London

49: 493-556 (Aug.) 1934

Tuberculoma of the Brain Associated with Ear Disease. J. P. Stewart.—p. 493.
*Facial Paralysis "a Frigore," Cured by Decompression: Two Cases. P. G. H. Sander.—p. 503.

Facial Paralysis Cured by Decompression.—Sander points out that many different clinical conditions may cause compression of the facial nerve in the fallopian canal. Congestion of the periosteum or neurilemma, hemorrhage, inflammatory exudation within or without its sheath, production of fibrous tissue or hypertrophy of bone—all would act as a compression factor. An exceptional anatomic position of the nerve in a narrow, rigid and comparatively long canal and attachments of its sheath to the periosteum make the adjustment of the nerve to this condition difficult, impede their elimination or absorption and tend to maintain the localization of the compression factors. Every case of spontaneous Bell's palsy of "unknown origin" that does not show any tendency to a definite improvement within a few days after its onset should pass into the realm of surgery, regardless of its relation to the severity of the condition of the middle ear. The earlier the decompression is done, the better are the prospects of the operation. Both the complete and definite paralysis of the facial nerve and the incomplete recovery, with subsequent contractures, abnormal twitching and sympathetic movements are most distressing conditions, and any attempt to prevent them by a decompression operation should be fully justified. There is a striking analogy between this question and the problem of glaucoma. The symptom complex of glaucoma is probably a deeper mystery than Bell's palsy. But the high value of hypotonizing operations aiming at the relief of the symptom of intra-ocular pressure on the optic nervous system is now generally recognized. The operations for glaucoma are now a routine procedure in the hands of every ophthalmic surgeon, to the great benefit of many thousands of patients. The same principle induced Worms to devise his operation for decompression of the optic nerve in the optic canal to relieve the condition of optic neuritis, regardless of its etiology. The author presents two cases of facial paralysis cured by decompression.

Journal of Oriental Medicine, South Manchuria

21: 13-24 (Aug.) 1934

Endocranial Bifurcations of Middle Meningeal Artery in the Chinese. N. Toida.—p. 13.
Nucleinic Acid and Its Derivatives: Part I. Effect of Yeast Nucleinic Acid and Its Derivative, Purine Compounds, in Lowering Blood Pressure and Antidotal Action of Liver Against It. K. Kashiwabara.—p. 15.
Contribution to Knowledge of Mesenteric Cystomas. Y. Matsuo.—p. 16.
Pigment Production of Bacillus Procyaneus and Bacillus Prodigiosus on Agar Mediums Composed of Mackerel or Bean-Cake. K. Fukumoto.—p. 17.
Constitution of Anemarrhena Asphodeloides Bunge I. J. Kodama.—p. 18.
Control of Malaria in Fushun Mines in 1933. E. Kitabatake, Y. Yamamoto and W. Murase.—p. 19.
Plague Epidemic at Nungan in Kirin-Province, Manchoukuo in 1933. H. Hiroki.—p. 20.
Dermatomycoses in New Independent State of Manchoukuo and Their Mycologic Studies: III. Communication. T. Terai.—p. 23.
Statistics of Dermato-Urologic Diseases During Ten Medical Inspections in Manchoukuo. M. Murayama.—p. 24.
Basic Experiment of Prophylactic Inhalation Against Scarlet Fever. G. Ishiyama.—p. 24.

Archives des Maladies du Cœur, Paris

27: 453-516 (Aug.) 1934

*Quantity of Circulating Blood and Its Behavior in Chronic Cardiac Insufficiency. A. Landau, Mlle. M. Markson, T. Goliborska and I. Lewicki.—p. 453.
Basal Metabolism and Specific Dynamic Action in Cardiac and Hyperthyroid Patients. A. Berland and T. Donskowa.—p. 510.

Quantity of Blood and Cardiac Insufficiency.—Landau and his collaborators used the method of Keith, Geraghty and Rowntree with the technical modifications of Seyderhelm and Lampe for determining the quantity of circulating blood. In twenty-eight cases of compensated but disordered circulation it was determined that myocardial degeneration and arterial hypertension were accompanied by a normal circulating blood value, mitral lesions and pulmonary emphysema with an increased volume. In pulmonary emphysema, this increased volume carried with it an increased proportion of erythrocytes. Albuminuria in hypertension, progressive endocarditis or a syphilitic etiology lower the polycythemia. The studies of the amount of circulating blood in fifty-two patients with decompensation were brought into relation with the minimum body weight after disappearance of the edema. The average amount of circulating blood in these cases was 118 cc. per kilogram of body weight, that of the plasma 53 cc. and the hematocritic index therefore (ratio of erythrocytes to total blood) 53 per cent. Those cases of myocardial insufficiency with edema and circulatory slackening are characterized by increased volume produced by the plasma and especially the erythrocytes. Greater polycythemia occurs following insufficiency of the right side of the heart due to pulmonary edema than in myocardial degeneration or in mitral or aortic lesions. In seventeen patients the quantity of circulating blood was determined several times in order to study the influence of compensation and loss of edema. After compensation the quantity of circulating blood diminishes, but it differs in individuals. The average quantity was 122 cc. per kilogram of body weight and 104 cc. after disappearance of edema. The authors could not find, however, any relationship between the quantity of circulating blood and basal metabolism.

Gynécologie et Obstétrique, Paris

30: 113-208 (Aug.) 1934

Directed Labor (Efficacy and Harmlessness of Some Procedures Devised to Direct Course of Labor). J. Voron and H. Pigeaud.—p. 113.
*Toxic Factor of Placenta Praevia. P. Nubiola.—p. 132.
Blood Transfusion in Some Gynecologic Conditions. M.-G. Serdukoff and M.-K. Leviskaia.—p. 139.
Colon Bacillosis in Gynecology (Enterogenital Syndrome): Ways of Infection; Their Clinical Manifestations. A. Guillemin.—p. 158.

Toxic Factor of Placenta Praevia.—In placenta praevia, Nubiola believes that there is a toxic factor derived from the placenta and affecting the fetus and mother. Following an anatomic study of the placenta of three cases, he believes that the toxic factor is produced by the liquefying of the placental cells and that this is reflected in the blood of the mother and especially of the fetus. The mechanism is due to an alteration of the villi, which become swollen and ruptured and end by dissolution of their cellular elements. The deposits of fibrin and other lesions previously studied are the results of placentolysis. These placental changes are not peculiar to placenta praevia but are similar to those observed in uteroplacental apoplexy and nephritic placentas. Analogous disorders are observed in red and white infarcts and even in apparently normal placentas but are limited in these to small regions and are of low degree. Confirmation of these results may have a clinical interest as an indication for early intervention.

Minerva Medica, Turin

2: 385-416 (Sept. 22) 1934

Gastric Function of Aged. D. Cantone and P. Croce.—p. 385.
Variations of Amount of Circulating Blood Determined by Application of Thermal Mud. C. Angeleri, S. Battistini and A. Robecchi.—p. 392.
*Leukocytometric Formula in Typhoid. A. Parini.—p. 397.
Devitalization of Periosteum in Thoracoplasty. R. Mariani.—p. 402.

Leukocytometric Formula in Typhoid.—Parini found that the diameters of neutrophils in normal healthy persons vary from 10.85 to 15.5 microns. Those of the lymphocytes run from 6.2 to 12.4 microns. There is a prevalence of larger forms in women. Of nineteen patients presenting typhoid, seventeen showed a deviation to the right of the leukocytometric formula during the incipient stage of the disease. The deviation became marked during the second stage but began to diminish during the period of defervescence. Two cases evincing a deviation to the left resulted in death. The author states that macrocytic leukocytosis is due to a lack of diminutive mitoses of Dustin, whereas microcytic leukocytosis may be attributed to an excess of these mitoses.

Archiv für Kinderheilkunde, Stuttgart

102: 193-256 (July 31) 1934

*Cerebral Disturbances During Childhood and Their Encephalographic Diagnosis. K. Rupilius.—p. 194.
Chloride Content of Capillary and Venous Blood and Serum During Nursling Age. G. Török and L. Neufeld.—p. 217.
Oxyuris and Oxyuriasis. F. Hamburger.—p. 223.

Cerebral Disturbances During Childhood.—Rupilius's paper is based on the clinical histories of all children with disorders of the central nervous system who were observed in the children's clinic in Graz in the last fifteen years. He divides the material into nine groups: acute encephalitis, cerebral paralysis, weakmindedness without paralysis, hydrocephalus, microcephalus, deaf-mutism, cerebral syphilis, cerebral tumors and other cerebral lesions. He points out that the incidence of acute encephalitides seems to have increased in recent years, and that there was in nearly all groups a slight preponderance of boys. A differentiation according to age groups disclosed that the incidence of cerebral disturbances was highest in children less than 2 years old. The history revealed difficult delivery in a high percentage of cases. The incidence of premature births corresponded in most of the groups to the usual ratio of approximately 10 per cent. The incidence of disturbances in the intelligence was rather high, but imbecility was twice as frequent as idiocy. Paralytic symptoms were present in more than 50 per cent of the cases. Hydrocephalic and microcephalic deformities of the cranium were present not only in children in whom the disorder was diagnosed as such but also in some who had other disorders. In a large percentage of cases the cerebral disturbances were accompanied by epileptiform and other convulsive attacks. The cerebrospinal fluid was examined in more than half of the cases, but pathologic changes were observed in only 25 per cent of the examined cases. The highest incidence of pathologic cerebrospinal fluids was observed in the cases of acute encephalitis. Following a report of certain observations made in the course of necropsies, the author discusses the causes of the cerebral disturbances, showing the rather high incidence of an acute or a former encephalitis (27 per cent, or 150 out of 548 cases). Trauma sustained during birth was found responsible in only sixty-two cases, although the history revealed a difficult birth in 149 cases. A differentiation of the prenatal disturbances into those of endogenous and of exogenous origin did not succeed entirely.

Beiträge zur klinischen Chirurgie, Berlin

160: 113-224 (Aug. 8) 1934

Operating Under Roentgenoscopic Control After Method of Grashey. L. Drüner.—p. 113.
Cardiac Function After Suture of Heart. K. Horsch.—p. 132.
*Mode of Action of Roentgen Rays on Diseased Human Thyroid. P. Sunder-Plassmann.—p. 138.
*Heterotopic Intestinal Mucosa in the Stomach and Its Rôle in Genesis of Gastric Ulcer. F. Clar.—p. 145.
Extragenital Endometrioses. W. Schär and S. Scheidegger.—p. 161.
*Anatomopathologic Considerations on Origin and Prevention of Thrombosis. H. Havlicek.—p. 174.

Mode of Action of Roentgen Rays on Diseased Human Thyroid.—Sunder-Plassmann points out that there is no unanimity of opinion as to the mode of action of roentgen irradiation on the diseased thyroid. His observations of a large series of histologic studies of both irradiated Basedow thyroids and nonirradiated thyroids in the surgical clinic of the University of Münster led to the conclusion that no definite alterations are to be found in the parenchymal cells of the gland after irradiation. Definite changes, however, were observed in the interglandular vegetative nervous apparatus. These studies demonstrated an extraordinary richness of the peripheral sympathetic nervous supply of the thyroid. The sympathetic nerve fibers enter the gland together with the

branches of the recurring nerve and of the superior laryngeal nerve, and with the fibers that run in the walls of the blood vessels. Immediately on entering the gland these nonmedullated nervous elements form plexuses, which enter each parenchymal cell and there break up into a fine meshwork—the terminal nervous reticulum. This reticulum is so fine that in order to obtain a photomicrograph of it the greatest magnification under the oil immersion lens is required. The fibers of the reticulum never terminate but are seen to be continuous with the protoplasm of the neighboring cells, binding all the cells into one neuroplasmatic functional unit. These fibers continue in the walls of the capillaries and the walls of the larger blood vessels, the combination suggesting a "neurovascular regulating mechanism." The same pathologic alterations were observed after irradiation in the terminal nervous reticulum in cases of simple colloidal or cystic goiter as in hyperthyroidism. The difference in the two is that in the latter the irritating impulse is of central nervous origin. This irritation alters the nature of the secretion and this in turn brings about the degenerative changes in the terminal reticulum. The sympathetic terminal reticulum may be intact in the early cases of thyrotoxicosis. It is therefore possible, in the author's opinion, to terminate a beginning hyperthyroidism by a timely cervical sympathectomy. Roentgen irradiation can accomplish the same result. That explains some of the successes with roentgen therapy. The effect of the rays in paralyzing the terminal sympathetic reticulum may bring about cessation of the morbid process. The roentgen rays affect these fibers because of certain pathologic alterations in the colloid of the neurofibrils. On the other hand, the well developed exophthalmic goiter presents an irreversible process, which can no longer be affected by irradiation. The timely irradiation of the hyperthyroid may be regarded as a "bloodless resection of the cervical sympathetic." The author is of the opinion that irradiation may likewise influence beneficially the refractive residual symptoms after a resection, particularly the exophthalmos. He considers hyperthyroidism an irreversible process best cured by a subtotal resection of the gland.

Heterotopic Intestinal Mucosa in Stomach and Gastric Ulcer.—Clar examined the stomachs of fifteen fetuses from 6 to 9 months of age. The stomachs of all the fetuses up to the seventh month presented, on histologic studies, either single or grouped typical intestinal crypts. Of three full-term infants, heterotopic intestinal mucosa was found in only one stomach. Heterotopic intestinal mucosa was not found once in a study of twelve cadavers without a history of gastric disease, or in twenty-six stomach specimens resected for the cure of a duodenal ulcer. The observations of these heterotopic islands in diseased stomachs is a common experience. Thus, the author found it six times in ten stomachs resected for gastric ulcer, and once in three specimens resected because of pyloric ulcer. Gastritis was not present in any of the cases in which the author found heterotopic islands of intestinal mucosa. These islands were found by the author, as well as by other observers, to be located most frequently in the pyloric, the prepyloric and the lesser curvature regions. On the basis of his observations the author considers heterotopic intestinal mucosa in the stomach a congenital displacement and not of metaplastic origin. He admits the possibility of secondary epithelization of defects in the gastric mucosa by preexisting intestinal cells. The intestinal mucosa may be digested by gastric juices. The peptic action of the gastric juice may lead to an erosion of the displaced intestinal mucosa and the latter, in the presence of other predisposing factors, may develop into a chronic peptic ulcer. Stomachs containing islands of heterotopic intestinal mucosa are particularly predisposed to inflammatory and ulcerative processes.

Origin and Prevention of Thrombosis.—Havlicek makes an effort to consider synoptically the three probable causes of thrombus formation: the slowing of the blood current, the damage to the wall of the vessel and the chemical changes in the blood. The present views regarding the peripheral circulation fail to explain satisfactorily the velocity of the venous current. The author points out that there are numerous localizations in the peripheral circulation in which exists the possibility of shunting the arterial blood directly into the venous circulation. The author refers to arteriovenous anastomoses. The anastomoses differ from both the arteries and the veins in their structure. The characteristic anatomic feature of these "short cut" vessels is that they are lined by what the author chooses to call "hydraulic" cells. The latter possess the property, when acted on by a number of autogenous as well as heterogenous substances, to swell and thus to shut the lumen of the vessel, or to empty and thus to open up the vessel. The effect of the opening of the arteriovenous anastomoses is to cause oxidation of the venous blood, to impart pulsation to veins and to accelerate the venous blood current. The chemical changes supposedly responsible for thrombus formation suggest the possibility of mixing of the peripheral venous blood with blood from the portal circulation. The portal system is not entirely separated from the peripheral venous system. There exist numerous anastomoses between the branches of the portal vein and those of the vena cava. Such an anastomosis exists between the inferior hemorrhoidal vein and the extensive pelvic plexuses that belong to the general circulation, the superior hemorrhoidal vein, a branch of the portal system. There also exist numerous anastomoses between the two systems at points of attachment of the intestine to the posterior abdominal wall. The author demonstrated these portal-caval anastomoses in cadavers by filling the two venous systems with a luminescent fluid and illuminating the latter with ultraviolet rays. The author further cites his studies that demonstrate the striking differences in the blood of the peripheral veins and that of the portal veins so far as the leukocyte count, the sedimentation rate of the red cells, the viscosity and the globulin fraction are concerned. A comparison of the ability to resist sclerosing effects by the arteries, the peripheral veins and the mesenteric veins reveals that the vessels which drain the toxic substances of the intestine, the vessels of the portal system, are most resistant. It is the author's opinion that the vomiting, retching, coughing and meteorism occurring after an operation may cause the passage of the blood from the portal vein into the branches of the vena cava by way of the portal-caval anastomoses. The blood laden with noxious substances may thus reach the femoral and even the saphenous vein. The mixing of the two kinds of blood, one of which, in addition to a difference in physical and chemical characteristics, contains toxic substances, leads to agglutination, to changes in the wall of the vessel and thus to formation of a thrombus. In the last five years the author has adopted the method of exposing the operative field to ultraviolet rays and has not had a single case of thrombosis or embolism. He theorizes that the effect of ultraviolet rays on tissues is to release histamine. The latter has a stimulating effect on the arteriovenous anastomoses, which in turn accelerates the venous current and prevents venous stasis. The author believes that, by exposing the intestine to ultraviolet rays in cases of acute peritonitis, splanchnic stasis can be prevented.

Strahlentherapie, Berlin

50: 369-528 (July 14) 1934. Partial Index

Methods Employed at Women's Clinic in Erlangen in Roentgen Therapy of Carcinomas of Female Genitalia. F. Wittenbeck.—p. 399.
Primary Morbidity and Mortality in Intensive Therapy of Carcinoma of Uterine Cervix (Particularly Radium Compared to Surgical Treatment). H. Kirchhoff and J. Drenckhahn.—p. 428.
Roentgen Irradiation of Carcinoma. H. Chaoul.—p. 446.
*Results of Roentgen Treatment of Hay Fever. H. T. Schreus.—p. 462.
Definition of Dose in Roentgen Rays. H. Behnken.—p. 476.
Definition of Absolute Unit of Roentgen-Ray Dose. L. Grebe.—p. 484.
Measurement of Ultraviolet Radiation in Absolute Units. W. W. Coblentz.—p. 487.
Shadowless Spherical Ionization Chambers. E. Miehlnickel and B. Rajewsky.—p. 499.

Roentgen Treatment of Hay Fever.—Schreus says that roentgen therapy has effected desensitization in various allergic disturbances, such as allergic bronchial asthma and eczema. His method of roentgen treatment of hay fever consists in two or three applications of 15 or 20 per cent of the unit skin dose to the nose. The fields are 6 by 8 cm., and the rays are filtered through 0.5 mm. of copper. Follow up of patients who received this treatment from 1930 to 1933 revealed that the treatment was more or less effective in twenty-two of thirty-five. The other thirteen patients were not influenced. The author thinks that a combination of the injection of pollen

extracts with roentgen irradiation may produce more favorable effects, in that the general desensitizing effect of the injections is promoted by the local action of the roentgen rays. He suggests that in this manner it might prove possible to shorten the rather long and expensive injection treatment. The author does not expect much from a combination with other local treatments but thinks that calcium and dietary treatments may be helpful adjuvants.

Wiener klinische Wochenschrift, Vienna

47: 985-1008 (Aug. 10) 1934

Rheumatism and Occupation. L. Teleky.—p. 985.
*Protein Economy and "Dextrose Effect," with Especial Consideration of Existence in Oxygen Deficiency. H. Elias.—p. 988.
Theory and Practice of Disinfection of Urinary Passages. R. Herbst.—p. 990.
Sterile Meningitis After Contrast Filling with Iodized Sesame Oil. M. Fossel.—p. 994.
*Alcohol and Liver Function. R. Bauer and O. Wozasek.—p. 995.
*Prophylaxis of Diphtheria by Active Immunization. G. Pöch and C. N. Leach.—p. 998.
Abscess of Great Omentum: Idiopathic Epiploitis. B. Chatzkelson.—p. 1001.
Internal Treatment of Syphilis with Acetarsone. M. Oppenheim.—p. 1001.

Protein Economy and "Dextrose Effect" in Oxygen Deficiency.—Elias gives a summary report of studies on the metabolism under negative pressure. He gave especial attention to the behavior of protein metabolism during oxygen deficiency and to its modification by sugar. Animals were kept for several days under negative pressure, while controls were kept under normal atmospheric pressure and were left to starve and suffer from thirst. Compared to the latter group of animals, those kept in oxygen deficiency showed great loss of water and of protein, while the loss in fat and glycogen was comparatively slight. Further tests proved that the liver of these animals showed a relative increase in nitrogen, and since the peripheral portions of the animals had lost nitrogen and there had been no food intake, nitrogen must have gone from the periphery to the liver. Studies on the blood revealed a decided inspissation and an albuminemia, and both these factors must result in an increase of the oncotic pressure. Certain observations on epileptic persons and the fact that nervous symptoms appear in persons at high altitudes led to studies on the galvanic irritability of animals that had been under negative pressure for three days, and a considerable increase was found. Since all these tests were made on animals that received neither water nor food, a new series of tests was made, one group of animals receiving water, another fat, a third protein and a fourth sugar. It was observed that in case of administration of water the nitrogen rest in the blood (indicator of the protein changes) increased considerably, although not quite as much as formerly. Administration of fat reduced the nitrogen rest only slightly more than did the water intake, while protein increased it considerably. The administration of dextrose, however, effected only a slight increase in the nitrogen rest and thus approached in this respect the normal protein metabolism. Administration of dextrose to animals kept under negative pressure produced nearly a normalization of the red and white blood pictures. Thus not only the disturbances in the water and protein exchanges had to be cleared up but also this so-called dextrose effect. The author relates further studies on the changes in the water and protein exchanges under oxygen deficiency and stresses that the most interesting factor is the modification of these changes by dextrose. In summarizing the effects of the administration of dextrose he points out that (1) it reduces the increased nitrogen rest and brings the pathologic protein exchange closer to the normal status; (2) it prevents the inspissation of the blood; (3) it decreases the galvanic irritability, which is increased during oxygen deficiency, and (4) it prevents to a large extent the changes in the blood picture. If the dextrose administration influences such widely different processes, its point of attack must be at a superordinated center. The author considers it possible that abnormal protein metabolism may be the common cause of all other disturbances and that dextrose regulates the protein exchange and thus counteracts simultaneously all the secondary phenomena. He admits, however, that this is only a hypothesis, which might eventually be replaced by a better one.

Alcohol and Liver Function.—Bauer and Wozasek found that in normal persons alcohol effects a considerable impairment in the assimilation of galactose. This action of alcohol can be graduated in that greater doses of alcohol effect a more severe galactosuria. In patients with liver disease, particularly in those with acute damage to the parenchyma, the effect of alcohol is paradoxical. The galactosuria caused by parenchymal impairment is not further increased by the administration of alcohol. On the contrary, a larger dose of alcohol produces a reduction in the elimination of galactose. This paradoxical behavior of the diseased liver in response to a substance like alcohol that ordinarily injures the liver is inexplainable. Considering the complex action of alcohol on parenchymal and nerve cells and on the vascular system, an explanation is as yet impossible.

Prophylaxis of Diphtheria.—Pöch and Leach show that it is possible to conduct a campaign against diphtheria in rural districts and give consideration to all legally required control measures. Their studies were made on 4,879 children, between 2 and 8 years of age. Of this number 1,746 (or 56 per cent of those with a positive Schick test) were given three subcutaneous injections of toxoid. The doses were 0.5, 1 and 1.5 cc., and the intervals between injections ten or fourteen days. The toxoid never caused undesirable complications. Repeated Schick tests revealed that 12 per cent remained positive in spite of vaccination. The morbidity ratio of the vaccinated and nonvaccinated was 4:9, which proves that the toxin protection had not sufficiently developed. In one locality, in which the diphtheria epidemic was especially severe, 19 per cent of the vaccinated children and 39 per cent of those who had not been vaccinated contracted the disease. Moreover, the fact that not one of the vaccinated children had a severe form of diphtheria and that all fatalities occurred among the nonvaccinated is a further proof of the protective action of vaccination against diphtheria.

Sovetskaya Psikhonevrologia, Kharkov

9: 1-160 (No. 2) 1933. Partial Index

Surgical Neuropathology of Gunshot Injuries of Nerves. Z. I. Geymanovich.—p. 13.
Rationalization of Military Psychoneurology and Five Years of Hospital Experiences. D. A. Krasnov.—p. 52.
Comparative Value of Methods of Treatment of Dementia Paralytica. M. A. Goldenberg.—p. 57.
Sulphur Therapy of Dementia Paralytica. E. S. Rodd.—p. 64.
Treatment of Dementia Paralytica with Chlorated Ammonium. I. V. Lazarev.—p. 68.
*Rôle of Hyperthermic Factor in Malaria Therapy of Dementia Paralytica. N. I. Pogibko.—p. 76.
Rôle of Specific Antisyphilitic Therapy in Development and Course of Tabes Dorsalis. N. V. Mirtovskiy.—p. 88.

Hyperthermic Factor in Malarial Therapy of Dementia Paralytica.—Pogibko treated fifty patients suffering from dementia paralytica with malarial therapy. He obtained a primary and a secondary remission in 50 per cent of the cases, and a third remission in 28 per cent; 12 per cent were not influenced by the treatment and 10 per cent of the patients died. The greatest number of favorable remissions was obtained in the early stage of the disease (neurasthenic), and next in the exalted stage. The earlier treatment is begun, the higher is the percentage of remissions. The percentage of first and second remissions in cases of from one to two months duration amounted to 72.8 per cent. These figures emphasize the desirability of early malarial therapy. The number of first and second remissions increases with the increase in the total number of hours of febrile temperature. The author likewise noted that the quality of temperature exerted a definite influence on the permanence of the results. Better remissions were obtained with an increase in the number of hours of temperature above 102.2 F. This was particularly true in the exalted group. The author is of the opinion that the hyperthermic factor is not alone responsible for the curative effects. In all probability there exist biologic factors in malaria. In the evaluation of the malarial therapy the number of febrile hours and the height of temperature are probably as important as the number of malarial attacks. The author computed on the basis of his material that the best results are obtained from a total number of febrile hours ranging from a minimum of 101 hours to 200, and that of the total number of febrile hours there should be from 51 to 100 hours above 102.2 F.